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A Construal Level Theory Approach to Health Media Effects

vorgelegt von Sabine Reich

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Erstgutachter: Prof. Dr. Peter Vorderer
Zweitgutachter: Prof. Dr. Herbert Bless
Dekan der philosophischen Fakultät: Prof. Dr. Matthias Kohring

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Mannheim, den 14.12.2015

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Sabine Reich

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"[T]here is nothing more tentative, nothing more empirical (superficially, at least) than the process of establishing an order among things[.]"

Michel Foucault, 1966

1 Introduction and Overview

Consider a health dossier in a weekly news magazine on vaccinations, which aims at persuading readers to get their children vaccinated. In 2012, 53% of Germans who got vaccinated within the previous five years stated their impulse to get vaccinated in the past was that they had heard about a vaccination through some media channel (e.g., radio, television, newspaper) (Reckendrees, Mertens, Wortberg, Gaczkowska, & Stander, 2013). Public health administrators and NGOs try to raise awareness through campaigns and positioning informative material in mass media programming. Other public health topics like safer sex, blood donation, or post-mortem organ donation have in common that they are (a) subject to persuasive public campaigns, but more importantly, (b) the behaviors advertised by these campaigns have ramifications for the actors as well as their environment and thus obviously exist in contradistinction of individual feasibilities and personal goal as well as societal goals.

The present work investigates the individual media user's understanding of these health messages as important factor of their educational and persuasive success. The processing of mediated information has gained substantial empirical attention and is rather well understood. First, the readers perceive the dossier visually. They read the letters and then translate them into a so-called *mental representation* of the article's content (Fiske & Taylor, 2013). Mental representations are models of objects, persons, as well as related processes in our minds. Mental models represent *things* that are outside our direct experience—that includes everything that is not physically present at a given moment or that is transcendental. They are not objective representations of the truth but sensitive to how we perceive and experience them. This makes all information processing a constructive effort, which can be biased. These mental representations are then stored in the readers' memory. The new mental representation about vaccination gets integrated and connected with the readers' existing knowledge about vaccinations, medicine, health, their personal experiences, for instance with needles, but also with less central information (i.e., how vaccinations work). This way the new information becomes part of the individual's larger knowledge structure. The new mental model

stays in memory until it is retrieved at a later point, for instance, when the reader is asked by a doctor to get vaccinated.

Yet, not all readers react the same way to health information. One reader might interpret the information about vaccination focusing on the act of getting a needle pinch or see it as complicated task that demands personal sacrifices. This reader might associate the suggested behavior with its feasibilities and the involved costs, for example, the monetary cost of getting to the doctor, the time investment involved, or simply the unpleasantness of being pined by a needle. This reader has processed the health message at a *concrete* level. Another reader might understand vaccination as public health matter, concentrating on the normative values, and seeing it as the civic responsibility of an individual. For him or her getting vaccinated is a desirable action with a strong goal focus on condemning spreadable diseases. This focus is equivalent to an *abstract* message processing. As a result of an abstract or concrete information translation process, the mental models of a given thing can vary markedly along a continuum of *abstract* versus *concrete* representations.

Hence, the leading question for the present work is: *How does abstract and concrete thinking about health messages impact the mental representation about a public health issue and the consequent attitude and knowledge?* The mental representation, its genesis, and its importance for health communication research are the central research object. In the center of the theoretical exploration stands the idea that individuals can adopt a more abstract thinking style (i.e., abstract encoding of information) in contrast to a concrete thinking style (Liberman & Trope, 1998; Förster & Dannenberg, 2010). The process of abstract thinking or *abstraction* is complicated to define unambiguously, but various explanations agree that abstraction entails categorizing and classifying something by its central characteristics (Burgoon, Henderson, & Markman, 2013). Accordingly, abstract thinking refers to thinking in central, general characteristics and categories. Concrete thinking, in contrast, includes thinking in exclusive characteristics. The more concrete the thinking style, the more concrete the formed mental representations are, and the more connections with equally concrete knowledge structures are activated. Research in the area of cognitive and social psychology addressed the impact of mental abstractions in object and person perception and found the level of abstraction to affect social judgments (e.g., Williams & Bargh, 2008; Henderson & Wakslak, 2010; Henderson, 2013) and behavior regulations (e.g., Fujita, Trope, Liberman, & Levin-Sagi, 2006; Agrawal & Wan, 2009;

Fujita & Sasota, 2011). The underlying processes of attitude formation are relevant, because classic research on health behavior changes has demonstrated that attitudes and behavioral intentions are crucial in determining actual health behavior (Fishbein & Ajzen, 1975; Ajzen, 1991).

How individuals *think about* and *represent* information at different levels of abstraction affects their attitudes and social judgments. Particularly, for public health problems making judgments based on normative values and general information stands in competition to judgments based on individualizing, personally relevant information. In two studies I investigate how the differences between abstract or concrete processing of persuasive health messages, specifically on a public health issue, changes a persons' associations and evaluation with this topic.

In the next section, I will briefly discuss examples of how abstract and concrete thinking was relevant in media and communication studies thus far. The following section (cp. Section 1.2) then outlines four central research objectives of the work in detail that will extend on the hitherto understanding.

1.1 On the Relevance of Abstract Thinking in Media and Communication Research

Abstract (versus concrete) categories—other than abstract processing—have sparked some interest in media and communication research already. Traditionally, this research has focused on abstract or concrete *presentations* in the media. Presentation is distinct from *representation*, although they are often used synonymously. Media or individuals present information, referring to a performance or display of information, while representation signifies the mental model of said presented idea (Abbott, 2008).

The existing theorizing usually uses more specific and theoretically narrower terminology, concentrating on specific domains of abstract presentation. Stereotypes and exemplars are two cases of abstract versus concrete presentation in media that have gained attention in media and communication research.

Stereotypical presentation of characters and their impact on the media user's attitudes are a classic topic for media and communication scholars. In the original sense of the term, as it was coined by Lippmann (1922), *stereotypes* aid humans—who are cognitive processors with a limited processing capacity—as mental short cuts. Stereotypes about individuals are abstract concepts, because they summarize many different individuals (e.g., from different cultures, different sexes) based on some inclusive characteristics that all individuals allegedly have in common (e.g., their skin

color). As such, the media's usage of stereotypical portrayals is a prototypical example of abstract media presentation. Content analyses show that the media often relies on stereotypical portrayals and reproduces the stereotypical assumptions of their society. Typical examples are the reproduction of mainstream beauty assumptions in children cartoons or the overrepresentation of white, male doctors in medical dramas (Rossmann, 2003; Klein & Shiffman, 2006). It has to be noted that this is a reasonable attempt, because the media try to communicate to a variety of individuals, who have different cognitive and social predispositions. From this perspective, stereotypes are one of many cognitive categories that organize information and, thus, are not only inevitable but quite functional, because they are a very inclusive and abstract category (Seiter, 1986).

For *exemplars* the mechanism is similar. An exemplar is specific example of a larger concept that stands in lieu of abstract information (Fiske & Taylor, 2013). Exemplars represent the opposite end of an abstraction hierarchy, because they are very concrete agents of a category. Following Zillmann (2006b, p. S221), exemplars, "come to represent, impartially or in distorted ways, the whole of the respective phenomena and issues". While exemplifications themselves are a specific and concrete form of presentation in mass media, the implicit conclusions drawn from them are abstract. Their characteristics are often overgeneralized to the associated members of the category, which the exemplar stands for.

Gerbner, Gross, Morgan, Signorielli, and Shanahan (2002) argued that repeatedly presenting biased information such as stereotypes or exemplars in the mass media influences the socialization of believes about reality (cultivation paradigm). Exemplars play an important role particularly in so-called first-order judgments of the prevalence of events depicted in the media. The ease with which information is recalled is often interpreted as a signal of its importance and centrality. This so-called accessibility bias affects media users' knowledge and related judgments (Srull & Wyer, 1979). Exemplars are often used to make such first-order judgments, for example, how often crimes happen or how often CPR (Cardiopulmonary resuscitation) is administered on average (Van den Bulck, 2002). It is further assumed that the frequent contact with such biased representations has the effect that the category and the related attitudes come to mind more easily in a judgment situation (second-order effects, Fazio, Powell, & Williams, 1989; Shrum, 1995). Particularly, if no direct experiences are available, media experiences, such as exemplars, function as stand-in (Brosius & Bathelt, 1994; Zillmann, 2006b; Peter, Rossmann, & Keyling, 2014).

These dominant theoretical perspectives suggest that the repeated exposure to stereotypes or exemplars in media portrayals activates mental representations in media users, which are easy to recall when needed. Media and communication studies have not embraced a more general perspective on the construction and activation of biased mental representations. Research from neighboring disciplines, particularly social psychology, begs the question how a broader thinking style, compared to a more concrete thinking style, influences the processing of persuasive messages, what mental representations and association it fosters and their effects. In technical terms, this would shift the assumption of a transmission of media presentation to mental representation to the exploration of how the individual's processing mind-set works as a filter in this transmission. It is this processing style that should be in the midst of this investigation, intentionally stepping from and application-oriented media effects perspective, to a theory-focused exploration of the cognitive thinking style.

1.2 Research Objectives of the Present Work

Media effects research has seen a turn towards a processing perspective in the past decades (Lang, 2013). Yet, only little empirical attention was given to the processes related to the level of abstraction on the recipient's side, namely the media user's individual cognitive encoding effort and resulting mental representation. In the journals of media and communication research questions of abstract versus concrete thinking styles have found only few notable applications thus far (Nan, 2007; Lutchyn & Yzer, 2011; Katz & Byrne, 2013; Ellithorpe, Brookes, & Ewoldsen, 2015; Kazakova, Cauberghe, Pandelaere, & De Pelsmacker, 2015; Young, 2015) and social psychologists have not shown an invested interest in questions associated with mediated message processing, but a few noteworthy exceptions (e.g., Menegatti & Rubini, 2013). To investigate how the momentary abstract or concrete thinking style of media users affects the impact health messages can have on their attitudes and behavioral intentions, four research objectives of this work can be mapped out.

Firstly, in this work I want to advance media and communication studies' existing theorizing of abstract and concrete categories, by introducing the theoretical understanding of mental abstraction as a generally broader thinking style, *or mind-set*, instead of partial mental representations like stereotyping or exemplification.

Secondly, Schwarz (2009) points out that individuals respond not to an objectively true representation of a situation, but rather to the situation as they see and represent it. By adding a situated cognition perspective to the research of mediated

message processing, I want to assess less studied determinants of knowledge formation and attitude judgments from persuasive media. According to the situated cognition perspective, the human perception is highly sensitive to the situation (for a review of situational influences, Ross & Nisbett, 1991). Abstract (versus concrete) thinking, according to this line of work, can be triggered by numerous context factors. For example, an individual's mood can influence the thinking style. Previous research showed, happy individuals tend to rely on their abstract knowledge structures more than individuals in a sad mood, because for them, positive mood implies that a situation is unproblematic, and the use of abstract knowledge structures is sufficient (Bless, Clore, et al., 1996). Abstract categories suffice in benign situations, whereas problematic situations are best mastered utilizing more detailed knowledge (Bless, 2001).

Similarly, priming effects make up a central paradigm in the research literature investigating abstract and concrete thinking styles from a situated cognition perspective. Primes are stimuli that activate concepts in the individuals' mind that in turn then influence the processing of a following stimulus. The concepts primed come to mind more easily when new information needs to be evaluated or integrated into the existing knowledge. Visual and conceptual primes can achieve that the following information is approached with an abstract or concrete mind-set. For example, research has repeatedly shown that distance is a central factor, which influences abstract or concrete thinking. Information about objects and people that are far away, for example temporally or locally, is processed more abstractly, whereas close things are processed with more detail (Liberman & Trope, 1998). Visual primes as well as conceptual primes can convey distance to an object. Previous research has placed focal object in the background of a picture versus the foreground, or simply told participants that the focal object they had to judge or evaluate is far away versus close to them (Trope & Liberman, 2000; Masuda & Nisbett, 2001; Amit, Algom, & Trope, 2009). That way the investigators primed the concept of distance. Procedural primes, on the other hand, train the logic of a certain thinking style with the individual, so they approach the following tasks in much the same way (Liberman, Sagristano, & Trope, 2002; Freitas, Gollwitzer, & Trope, 2004; Updegraff & Suh, 2007). For example, individuals are asked to find an overarching and thus abstract category for an object. By repeating this task with every given answer, individuals get more abstract with every answer (i.e., A *puddle* is an example of a dog; *dog* is an example of a mammal, a *mammal* is an example of an

animal). Individuals get used to this way of thinking for a short time and approach the next task with the same mind-set (Liberman et al., 2002).

In the context of processing mediated information, priming effects can stem from the activation of an abstract or concrete thinking style by previous communication (mass media and interpersonal alike). Such priming effects are a well-known research topic in media and communication studies. Traditionally, agenda-setting and priming effects share the same underlying social psychological assumptions. The classic study of agenda-setting effects showed that the issue frequency in the mass media coverage of presidential candidates correlated significantly with the frequency with which the issues were cited by voters (McCombs & Shaw, 1972). Likewise, television news (Iyengar, 1987) and even entertainment can exert priming effects (Holbert et al., 2003). In summary, the work at hand focuses on arbitrary situational sources that can activate not only concepts, but also thinking styles—referring to the way individuals approach an information-processing task. As argued above, these sources do not have to be media sources. An argument with another person about morals and ideologies, which are abstract categories, could lead to a person judging a news article he or she reads later on, by applying more general, moral standards in their judgment. While conceptual priming has had much room in media effects theorizing, the transfer of a thinking style—as a way of rationalizing, encoding, interpreting—has not received as much attention in the media effects community.

A third research objective lies in acknowledging cultural and individual differences as determinants of information processing and putting those in relation to an abstract or concrete mind-set. Individual and cultural factors ought to be kept in mind, when assessing factors outside the media stimulus, which impact how media users think about a stimulus. Psychology has learned much about the role of individual factors in information processing. The dual-process approach to information processing, for example, posits that information are processed with more cognitive effort when they are relevant to the receiver (Petty & Cacioppo, 1979; Petty, Cacioppo, & Goldman, 1981), especially if the receiver has a higher disposition to scrutinize new information with cognitive effort (Cacioppo, Petty, Kao, & Rodriguez, 1986; Epstein, Pacini, Denes-Raj, & Heier, 1996). But also abstract or concrete thinking is influenced by individual tendencies that are relevant for my research. Individuals show a difference in their tendency to mentally represent actions abstract and goal-oriented (i.e., living healthy) or

concrete and behavior-oriented (i.e., going to the fitness center once a week, shopping fresh produce at the farmer's market, Vallacher & Wegner, 1987).

In addition, the cultural background of a person influences their information processing, because culturally based believes and schools of thought socialize the way individuals make inferences and categorizations (Kitayama, Park, Sevincer, Karasawa, & Uskul, 2009). Nisbett, Peng, Choi, and Norenzayan (2001) argue that culture has an impact on the extent of a holistic thinking style that differs from an analytical style, because it applies broader concept focus and assumes complex associations between entities involved. Individuals from individualistic cultures tend to attribute the behavior of others on trait rather than situational factors, hence making more stereotypical and schematic inferences (for a full review see Kühnen, Hannover, Pöhlmann, & Roeder, 2013). Cultures with a stronger collectivistic tradition very much acknowledge interdependencies between individuals and circumstances. Therefore, those cultures also attribute the behavior of others to a myriad of possible factors.

Finally, measuring abstract or concrete mental representations has proven a complicated task in the past and has been omitted due to the existing literature suggesting the manipulations work (Fujita, Henderson, Eng, Trope, & Liberman, 2006; Eyal, Liberman, & Trope, 2008). Especially when considering abstract thinking to be broad and applying it to complex ideas, people, objects, and actions no go-to measure exists (Burgoon et al., 2013). Established measures are domain specific, often concentrating on the presentation of action (Vallacher & Wegner, 1987; Semin, 1994). Thus this study will try in a fourth step to actually measure how individuals perceive and process information to investigate the underlying effects of abstract and concrete thinking on attitude and knowledge changes.

1.3 Summary

The present research looks at the role of abstract and concrete thinking styles in the processing of mediated health messages. Attitudes and knowledge are based on the mental representations formed of reality; consequently, the level of abstraction of mental representations matters. The processing of information is highly susceptible to incidental factors, which are often ignored in message-centered research. Besides concentrating on situational factors, also individual and cultural differences will be explored. The presented work investigates how situational, individual, and cultural differences in abstract and concrete thinking affect attitudes and knowledge through message construal.

The literature review will approach the theoretical basis for these research objectives systematically from the broader understanding of abstraction in social cognition and move towards highly specialized theories that allow making predictions about the effects of abstract or concrete thinking and their determinants. The literature review starts by introducing the conceptualizations of abstract thinking in psychology (Chapter 2) and I will map out the specific information processing mechanism on which the subsequent ideas are based on. Chapter 3 reviews the theoretical modeling of abstraction as a processing mind-set. I review two central theoretical frameworks, Action Identification Theory (cp. Section 3.1) and Construal Level Theory (cp. Section 3.2) that have produced a broad data basis on the influence of mental abstraction on social judgments (cp. Section 3.3). Chapter 4 follows the introduction and identifies research on situational factors (cp. Section 4.1), individual differences (cp. Section 4.2), and cultural differences (cp. Section 4.3), which impact how individuals construe information. Next, in Chapter 5 I will synthesize the literature review to a number of research hypotheses exploring this basic theorizing in the subject of mediated health message in mass media. The first study investigates the impact of the processing mind-set on representation of an audiovisual target health message about organ donation and on the consequent attitudes and social judgments (cp. Chapter 6). The second study investigates the impact of mood on the processing mind-set and consequent attitudes and social judgments (cp. Chapter 7). Finally, Chapter 8 concludes with the theoretical implications of the investigations and offers an outlook on possible application within the area of media and communication studies.

2 The Phenomenon of Abstract Thinking in the Context of Information Processing

The German philosopher Georg Wilhelm Friedrich Hegel asked in his essay[1], "Who thinks abstractly?" and answers the question with, "The uneducated, not the educated. Good society does not think abstractly, because it is too easy, because it is too lowly" (Hegel, 1807/1966, p. 114).[2] However, that is not Hegel's opinion, it is his ironic response to his critics, who have accused him of abstract reasoning in his philosophic writings. In fact, Hegel did use much "abstract" language in his writings, which made them bloated and hard to understand or as Schopenhauer called it *obscure* (Schopenhauer, n.d./1975).[3] Unlike Hegel, his critics understood abstraction as the mere random reduction of complex ideas to a universal fact. The basic question remaining, however, is whether the abstract terms are actually random or not, whether it is easy or not, which systematic underlies abstract thinking and what is its function.

The debate about abstract thought goes back to ancient philosophy and the problem of *universals*. Like Aristotle or Kant, Hegel assumed that universal characteristics existed. A typical illustration of a universal characteristic is color. Assume an apple and a chair both have the universal characteristic of being green. "Greenness" thus is a universal attribute. The conflicting philosophical view held that universals—abstract ideas that cannot be experienced directly—do not exist (MacLeod & Rubenstein, 2007).

Philosophy, as later on psychology, has come to conclude that abstraction or universal ideas are not an easier or a lower form of thought. The ability to extract the primary information of a thing or things is what enables humans to transcend the immediacy of a situation. Everything individuals learn and experience is subject to some level of abstraction (Trope, Liberman, & Wakslak, 2007; Trope & Liberman, 2012; Burgoon et al., 2013). Both psychology and sociology have adopted the idea that human perception is *egocentric*, in that direct experiences offer more information and are thus more concrete, whereas indirect experiences, for example through the media,

[1] The original publishing format and place of the essay remains unclear, the date is estimated by Hegel scholars, but is not undisputed (Kaufmann, 1966).

[2] Original German text: "Wer denkt abstrakt? Der ungebildete Mensch, nicht der gebildete. Die gute Gesellschaft denkt darum nicht abstrakt, weil es zu leicht ist, weil es zu niedrig ist (…)" (Hegel, 1807/1986).

[3] Schopenhauer has accused Hegel of copying Kant's "obscure" writing style, to confuse the readers (Schopenhauer, 1859/1977). Obscure was the word of choice to relate Hegel and Kant to obscurantism. Obscurantism refers to a deliberate vagueness in style and language to withhold the truth ("obscurantism," 2015). This vagueness is conceptually related to the idea of abstract or universal concepts.

are more abstract (Berger & Luckmann, 1966; Adoni & Mane, 1984; Liberman, Trope, & Stephan, 2007). The concrete extreme of the abstraction continuum is based within the individual; everything beyond the self is to some degree abstract.

The concept of abstraction has long been ill defined in psychology. As Burgoon et al. (2013) illustrate the term abstract has many synonyms: holistic, general, informative, essential, or universal. Burgoon et al. (2013) build upon these terms and define abstraction as, "a process of identifying a set of *invariant* central characteristics of a thing" (p. 502). The present work will make use of this definition of abstraction as the process of identifying universal features as well as keeping the suggested terminology that refers to the abstraction of *things*. The definition is useful, because it (a) introduces abstraction as a process and not just as a characteristic of an object. The identification of central characteristics is a prerequisite for both categorization and associations. Furthermore, (b) the term things[4]—although uncommon to social sciences—is quite elegant, as it includes a variety of objects, such as, "inanimate or animate objects, events, actions, and ideas" (Burgoon et al., 2013, p 503). Thus, abstract thought is a mode of thought concentrating on more abstract and universal features, while concrete thought, at the other end of the continuum, has immediate and detailed experiences as subject.

In the remainder of this chapter I want to accomplish two things: First, I want to base the concept of *abstract thinking* within the information-processing paradigm. Therefore I start by briefly introducing the general model of information processing on which all further considerations are based on (cp. Section 2.1). Secondly, I will specify what abstract thinking entails. Therefore, in the following Section (2.2), I summarize the extensive theoretical and empirical work investigating how information are ordered and categorized in our hierarchically organized mind. Next (in Section 2.3), I review historical theoretical and empirical evidence suggesting that the perception and processing of new information can attend to either the direct experience or the abstract features. The chapter ends with a summary of the function that mental abstraction serves in human cognition (cp. Section 2.4).

2.1 Abstraction in Mediated Information Processing

According to the classical approach to information processing, three—sometimes co-occurring—processes can be distinguished, which allow individuals to

[4] Foucault (1966/2012) also used the term things in his work „The Order of Things", that follows the history of science by retracing how knowledge categorization changed.

make sense of the world, including the media: encoding, storage, and retrieval of information (Lachman & Lachman, 1986; Lang, 2000). In all of those stages automatic and controlled processes occur.

Information processing starts with a sensory perception, involving all human senses (Fiske & Taylor, 2013). For mediated message processing this specifically means visual and/or auditory perception (Lang, 2000). The stage of information encoding, as Lang (2000) puts it, "involves getting the message out of the environment (…) and into a person's brain" (p. 47). Once sensory perception of the stimulus happened, it is selected for further processing or dismissed. This selection is rapid and can happen intentionally as well as unintentionally. Selected information is converted into an activated mental representation (Lang, 2000; Fiske & Taylor, 2013). As introduced earlier, a mental representation is a cognitive image of things (animate or inanimate) and ideas (universals). It is active when it is formed and used. It can remain in the post-perceptive working memory and then be dismissed or it can move from there on to long-term memory storage. The translation of information from perception to mental representation involves a myriad of inferences and interpretations, which are also referred to as *construals*. Etymological this relates to the Latin base for "to construct", construere. The term construal characterizes the constructive effort of making sense of the incoming information and signifies the construction of the mental model that occurs between encoding and storage. The resulting mental representations are not perfect models of reality, they are, "idiosyncratic representations of the message" constructed by the (media) user (Lang, 2000, p. 49).

These mental representations are then stored. There are several theories about what is stored how in working memory, short-term memory, or long-term memory. The present work builds upon theories about the organization of our mind and memory as an *associative network* of knowledge structures (Bower, 1981; Anderson, 1983). Like a semantic network, where basic concepts are related (e.g., medicine to health and needles), in this theoretical perspective knowledge and memory are organized in networks, where any piece of information has several nodes connecting it to related information.[5] For example, *healthy living* could be related to *buying fruit* or *working out regularly*, but also to *workout is demanding and boring*. Some of these links are more essential than others. In an associative network a newly formed mental representation establishes connecting nodes to other existing knowledge entities. The more such

[5] An example for a semantic association is roses are red, fire trucks are also red, fire trucks put out fires, fires are dangerous, red can mean danger.

relations can be established, the better the mental representation is stored and the easier it can be found through different retrieval pathways in the retrieval process.

The basic associative network theory has been extended and updated with findings especially concerning activation and retrieval pathways (e.g., of semantic memory, Collins & Loftus, 1975). Information retrieval proceeds along the nodes of the network (E. R. Smith & Queller, 2001; Fiske & Taylor, 2013). A search in memory on a particular idea proceeds along the first-order nodes to all related concepts and then to the second-order nodes related to these concepts. Essential connections will come to mind more easily (Collins & Loftus, 1975). In this third stage of information processing the stored mental representations are initially activated, but activation needs renewing. Stored information can be activated by use. However, activation of long-term memories is not accurate, rather, the search process and the nodes that connect any mental representation with related mental representations activate a whole network of related information (Lang, 2000). Associative network models of memory refer to the currently activated information as the so-called short-term or working memory. The long-term memory, in comparison, holds all memory nodes that can be potentially activated and thus remembered, but are not currently activated.

Existing mental representations are also critical in this process. Stored information can be used frequently and activated again to integrate new information into the network. They are intertwined in an associative network and can potentially be retrieved with every new instance of information processing, to understand newly perceived information and organize it into the existing network (Lang, 2000).

2.2 Abstract Concepts in the Organization of Knowledge

The following sections take a specific look at semantic categorization as well as research on general knowledge structures and their hierarchical organization. In order to manage the myriad of information in everyday life, abstract representatives of categories help individuals to identify and categorize new information quickly.

2.2.1 Semantic information categorization.

Abstract mental representations are best explained and scientifically understood—at their most general level—by considering research on semantic categories of natural things and common objects (Kay, 1971; Rosch, 1975; Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976). Semantic categories are the basic entity of classification in the organization of our mind. Depending on the abstract or concrete

categorization of a thing, it should become clear that evaluations of the thing naturally vary. Imagine you are asked to rate how much you like a thing (e.g., an orange). Evaluations will differ depending on the concreteness the semantic category prompted to you (e.g., citrus fruit vs. orange) and the consequent differences in the mental representations of these semantic categories. While someone might like oranges, lemons might not be so well liked, but both are citrus fruits. Extensive research was conducted on how individuals form categories and exemplars and the central question of this line of inquiry is how these existing semantic categories are used in the identification and categorization of new information. This research constituted that the process of forming categories is universal in that, "[o]n the most general level, categories form so as to be maximally differentiable from each other" (Rosch et al., 1976, p 435) and basic exemplars from those categories are those, that allow the perceiver to gain the most information about an object he or she has to identify with the least cognitive effort. When arranging new information in the human mind, for example, seeing a public health campaign poster urging condom use to prevent HIV contraction, the information can be either sorted within larger categories (e.g., health) that hold many other exemplars of similar nature, or it is categorized at a very detailed level (e.g., sexually transmitted disease). This arranging of new information is referred to as high and low level abstraction. Higher abstraction was defined by a higher inclusiveness (of objects) into the category (Rosch et al., 1976) and lower abstraction was defined as, "[the] finest available set of mutually exclusive and jointly exhaustive taxonomic categories for classifying an individual" (Kay, 1971, p. 877). Semantic categories are, of course, culturally relative, however, adults across previous studies shared, for example, what constitutes a good exemplar of a natural category (i.e., fruit or trees). Similarly, pictures of objects constituted very concrete exemplars of object categories compared to words (Rosch, 1975).

2.2.2 Abstract and concrete knowledge structures.

Cognitive and social psychology identified various knowledge structures that are central in the organization of our mind. Their theoretical backgrounds are diverse. This introduction focuses on the level of abstraction in knowledge structures (rather then on which memory processes they are involved in). Prototypes and exemplars are two central categories and are rather concrete representations of a category. Both are mental representations that aid categorizing new information in different ways, as proxies of an object category. A prototype, according to Fiske and Taylor (2013), is an average agent

of a category, summarizing all the important features how they most typically occur. It is a concrete representation of the possible manifestations of an object representation. An exemplar, on the other hand, is a typical case of a category against which new information can be compared. Its concrete representation is informed by direct experience (E. R. Smith & Queller, 2001).

Beyond categorization, reacting to new information also utilizes abstract knowledge in the form of schemata and scripts. Both concepts describe the knowledge about what events/actions/associations typically co-occur, like paying the check follows having dinner at a restaurant. Abelson (1981) distinguishes a script as a very simple form of a schema and as, "[embodied] knowledge of stereotyped event sequences" (p. 715). Schemata, on the other side, have a long history in psychological research. Fiske and Taylor (2013) define schemata as abstract or generalized knowledge about a concept or object and the related concepts. Piaget (1962) used schemata in his work on children's learning. According to him, motion is based on early schemata. They hold the information that a specific motion, such as grabbing for something, leads to a goal, like getting food. New information can be assimilated or the schema has to be accommodated to the new information. The motion grabbing also brings other things closer, such as hands, hair, or toys. The new information is assimilated. In contrast, new information that does not fit an existing schema leads to the accommodation of the schema, an alteration. Remember that grabbing for smaller items has worked well for the child, but grabbing for newer, bigger toys does require other motions. Here a schema has to be changed to accommodate a new situation.

Stereotypes are a final example of commonly studied abstract mental categories (but only in people perception). Typically, social categories like race, gender, age, sexual orientation, and social class are studied. Although this work is not specifically considering people perception, a general thinking style would also include the abstract or concrete representation of people.

These briefly introduced representations constitute different abstract and concrete forms of knowledge structures. They are not competing theories of representation, but can and have been theorized as complementary types of mental representation (E. R. Smith & Queller, 2001). As such, stereotypes, schemata, exemplars, and prototypes can be part of an associative network. For example, a schema can be conceptualized as a set of units or nodes that have strong associations and when one is activated the associated units are also activated. From research in people

perception not only the mental representation is considered, the process of *stereotyping* refers to automatic activation of category information and is a form of category-driven thinking (Fiske & Taylor, 2013). The upcoming section explores theorizing which goes beyond a specific knowledge structure assumes a general abstract or concrete thinking style.

2.3 Abstract Thinking as Processing Style

2.3.1 Abstraction as global focus.

Early thoughts about abstract processing are based on the *Gestalt*-debate in the early 1900s. Assuming that our physical and psychological world is most often composed of a number of layers, the principle question in this research community was whether individuals perceive the whole before they perceive the components that make up the whole (Runes, 1972). Theoretically, the structuralists' view held that the individual functional parts are perceived first and then arranged as a whole. The Gestaltists, in contrast, assumed the primacy of the whole, meaning that the parts receive their significance only from the whole. The Gestalt debate therefore endures as discussion about how individuals generate sense from their surroundings. Kimchi (1992) argues, what has withstood from this debate is the acknowledgment that the whole is qualitative distinct from the sum of its parts.

In visual perception research, Navon (1977) introduced the metaphor of the forest and its trees to express this theoretical idea. Will an onlooker first notice the forest as a whole or will he or she first notice the trees-the parts that make up the forest? A focus on the whole is called global focus, whereas the other end is called a local focus on the particulars. With a unique set of visual identification tasks Navon (1977) supported this hypothesis that individuals will first notice the whole before the parts in visual perception (*global-precedence* hypothesis). The task consisted of a number of small letters (e.g., all Es), which were arranged in the shape of the large letter (e.g., either congruent as an E or incongruent as H, cp. Figure 1). In the process of forming a mental representation the first percept is most often the global structure (large letter),[6] which is not to say that the global structure makes up the final mental representation (Kimchi, 1992).

This research laid the ground for differentiating between global and local visual perception. The question that remained unclear from this line of research is whether the

[6] This does not necessarily imply serial processing. According to Kimchi (1992), also parallel processing is possible, in which case global information is processed faster than local processing.

dominance of global features over local features exists beyond visual perception. The next section therefore reviews theory and evidence about the encoding of concepts in contrast to visual perception.

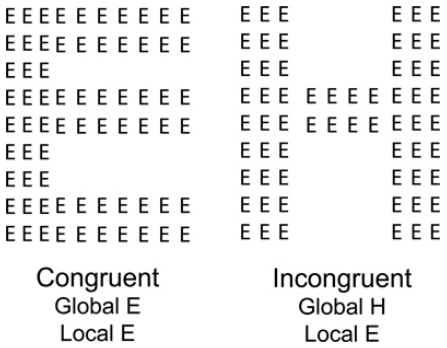

Figure 1
Exemplary Navon letters, cited from Watson (2013, p. 3)

2.3.2 Abstract concept encoding.

Cognitive psychologists have argued that the mechanisms of visual perception, namely global and local visual focus have equivalent mechanisms in the perception of concepts. Local (narrow) visual attention allows to focus the perception on an object, while ignoring its periphery (Derryberry & Tucker, 1994). Global (broad) visual attention concentrates on the whole, or on what Navon (1977) called the *forest*. Broad versus narrow activation patterns in semantic networks are associated with global versus local conceptual attention respectively. A concept prime, such as *mountain*, would spread narrowly to concrete associations (i.e., *stone* or *goat*). In a broad conceptual attention situation the associations should be more abstract and more remote (i.e., *nature* or *polar bear*) (Förster & Dannenberg, 2010). Given the reasoning above, a narrow visual attention task, as explained in the Navon letter task, then should lead to a narrow conceptual attention. Supporting evidence shows visual priming of global attention (using a computerized adapted version of Navon's original letter composition) led to conceptual changes in social and local distance judgments, such as how far the next train station is from the participants (Liberman & Förster, 2009). The global attention priming led to higher distance judgments and distance is conceptually linked to abstractness (Trope & Liberman, 2010). Additional evidence comes from a series of experiments on creative thinking. Creativity benefits from a global mind-set, because it allows for more untypical examples to be included in a category. Different versions of visual global (versus local) focus primes repeatedly led participants in the experiments to come up with more creative exemplars and uses for target concepts (Friedman,

Fishbach, Förster, & Werth, 2003) and better scores in creative problem solving measures (Förster, Friedman, & Liberman, 2004), which require a global conceptual focus.

The relation between perceptual focus and conceptual focus is also subject to research investigating the impact of affective cues on attention. Derryberry and Tucker (1994) argue that conceptual and perceptual scope relate through attentional mechanisms that trace back to very primitive neurological changes due to various arousal states (for a compact review of the neurological basis for the motivated changes in attentional scope see Derryberry & Tucker, 1994). The underlying argument in this research area can be summarized as the idea that during benign situations, individuals adopt a broad attentional state to detect novelties in their environment. These situations are calm and emotionally not arousing. During threatening situations, which posit high arousal emotional states, individuals need to focus their attention on the task at hand and thus narrow the scope (Derryberry & Tucker, 1994; Friedman & Förster, 2010). This so-called *attentional tuning* assumption (cp. further Section 4.1.3) was empirically tested for conceptual (attention-) focus as well as for perceptual (attention-) focus. Isen and Daubman (1984), for example, varied the mood of their participants using presents and videos, showing that individuals in a happy mood include more poor exemplars into a category than participants in neutral or sad mood conditions. Both perceptual and conceptual attention displayed the same narrowing and broadening pattern during high and low arousal states (for a research review of attentional tuning see Friedman & Förster, 2010) thus implying that they are related.

2.4 Functionality of Abstraction

Abstraction serves many masters in social cognition, but a few central points to its functionality should be mentioned. For one thing, abstraction serves individuals by allowing them to represent things that lie outside their direct sensory perception. Things, which cannot be experienced in one's own here-and-now realm, have to be represented with a mental image that is abstracted from reality to some degree (Liberman & Trope, 2008). Having a range of abstract and concrete construals available enables humans to go beyond their immediate experience, and integrate abstract information for which no direct or concrete information exists. Secondly, extracting the central and relevant themes from new information also constitutes a strategy of complexity reduction (Rosch et al., 1976). In line with this function, generalized knowledge structures (i.e., stereotypes, inclusive categories) can be associated with higher abstraction levels

(McCrea, Wieber, & Myers, 2012). From that perspective, stereotyping, as a cognitive process, is nothing else than encoding new information into memory at the most functional level of abstraction. By attributing behaviors to individual dispositions, participants can rely on schematic models of behavior when judging other's behaviors. Compared to factoring in circumstance and environmental causes, disposition-based judgments are much easier (Nussbaum, Trope, & Liberman, 2003). Abstraction as a form of complexity reduction has also been investigated, for example, in consumer research. Consumer choice tests show abstraction aids making everyday choices (Xu, Jiang, & Dhar, 2013). Consumers were tasked with making a choice from a large assortment of similar articles. Consumers who represented the assortment more abstractly rated the article more similar than consumers with a more concrete mental representation of the assortment and in turn reported it was easier for them to make a choice.

Finally, from the perspective of semantic network theory, the grouping of new information in larger categories like *every green produce is a vegetable* aids not only complexity reduction, but also learning. Such overgeneralizations are not always true (e.g., green tomatoes or apples are not vegetables), but they are very often true. When new information is categorized with existing information, the existing nodes of an overarching concept, like *vegetables are healthy* and *vegetables don't taste good* can help the learner to assess the properties of the newly acquired information. With that being said, the functional role of abstraction in the cognitive development of children is to learn categories and relationships (Brown, 1958). Contradicting research exists on the question whether abstract categories precede or follow detailed categories in learning (Burgoon et al., 2013). Brown (1958) was the first to note that the level of abstraction of any one thing is first-of-all due to the experience the child has had so far with a thing. Most likely, hierarchical relationships form both ways (concretizing and abstracting) from a medium level of abstraction.

2.5 Summary

Assessing abstract thinking in the context of information processing is important to the present research, to understand what it means think abstractly. This chapter first explained how the task of information processing is understood for this work. Following the classical approach to information processing, three—sometimes co-occurring—processes can be distinguished, which allow individuals to make sense of the world, including the media: encoding, storage, and retrieval of information

(Lachman & Lachman, 1986; Lang, 2000). I defined *construal* as the combined tasks between perception of a stimulus and the resulting mental representation. It refers to the construction effort of making a mental image of the subjective reality. The construal of information is the central mechanism this investigation concentrates on.

Abstraction in mental representations is best explained and scientifically understood when looking hierarchical organization of knowledge. Abstract mental representations, such as abstract categories (furniture vs. kitchen table), were first investigated under the premises of semantic information organization. The understanding of abstraction has to be widened, however, from object categorization to the organization of people information and concepts (i.e., events, ideas). Well-established forms of abstract knowledge categories are schemata and stereotypes. The organization of old and newly represented information in the human mind is understood as associated network (Collins & Loftus, 1975).

The chapter closes by reviewing initial ideas about abstraction as mind-set during the encoding stage. Research on a perceptual focus (Navon, 1977) provides intriguing evidence that abstraction is not only a category of mental representation, but constitutes a processing mind-set that affects how individuals take on a processing task. The question that remained unclear from this line of research is whether the dominance of global features over local features exists the same way in concept perception. Closing the link between abstract perceptual and conceptual focus, the chapter reviewed some representative literature that shows how an abstract perceptual focus has individuals attend to more abstract concepts. The literature suggests that abstract thinking already starts with the attentional focus during the first stage of information processing (encoding). Furthermore, empirical evidence allows linking the attentional focus to the resulting mental representations. The reviewed aspects of abstract thinking permit individuals to mentally represent things outside their direct experience and ease the processing of new information by reducing the complexity of various specific characteristics to a few global categories.

3 Theorizing the Effects of Abstract Thinking on Knowledge and Attitudes

The previous chapter detailed the mechanism of abstract thinking. This chapter will go on and discuss the effects of abstract construal (vs. concrete construal) in different social judgment domains. Cognitive psychology and social cognition do not offer a unified theory of abstraction, but rather several theories that have described an abstract thinking style and its effects. Two of these theories will be in the center of this literature review, *Action Identification Theory* and *Construal Level Theory* of psychological distance. Both theories are conceptually close and Construal Level Theory builds on assumptions of Action Identification Theory. Together these theories have produced large research frameworks on a cognitive processing mind-set guiding how abstractly or concretely individuals approach a processing task. Research results from those two theoretical frameworks help modeling the influence of abstract construal of health messages on both evaluation and retention. After briefly introducing the two theories, a literature review will systematically collect relevant research on the question: How does abstract construal of information manifest in mental representations (cp. Section 3.3.1) and social evaluation (cp. Section 3.3.2). The chapter will close by summarizing the central ideas from the contemporary literature and discuss how present research can apply these concepts.

3.1 Action Identification Theory

Action Identification Theory emerged in social psychology as a comprehensive theory of how individuals think about what they are doing (Vallacher & Wegner, 1987). The theory is central to social psychology and social cognition, because it integrates the relationship between mental representations and actions. The theory posits a reciprocal connection between mind and action (for a recent theory review see Vallacher & Wegner, 2012), specifically, how individuals act and what greater meaning they attribute to their actions. The central assumption is that individuals identify their actions along a cognitive hierarchy—a continuum from abstract (high) to concrete (low) action identification (Vallacher & Wegner, 1987). The mental representation of an action aids individuals in performing molecular actions successfully and gaining sufficient meaning from their actions on a molar basis (Vallacher & Wegner, 1987). The action identification is a central reference point for initiation of an action and for the evaluation of the action performance (Vallacher & Wegner, 2012), because it resembles the mental representation of the action. Take for example the action of *buying apples*

and oranges. The abstract identification of this action could be *getting food to eat* or *living healthy.* It could be identified with increasing concreteness as *going to the fruit isle of the supermarket to buy apples and oranges* or *reaching for three apples and moving on to reach for four oranges*. These representations increase the details about the action. Based on how the action is represented cognitively its performance is guided and evaluated.

According to Action Identification Theory and in agreement with the objective of the presented work, the more abstractly an action is identified, the more it links to an individual's morals and ideals, the more individuals think about an action with regard to causalities and goals, and the more relevant the action is for this person's identity (Vallacher & Wegner, 1989). In comparison to more concrete action identifications, higher and more abstract levels of action identification go along with an increasing attribution of meaning to the action. On the one hand, abstract representations help individuals to make sense of their actions at a greater scale. Hence, individuals thrive to a coherent and comprehensive understanding of the world and therefore, if both abstract and concrete identifications of an action are available and suitable, individuals tend to adopt a the more abstract identification (Vallacher & Wegner, 1987). On the other hand, abstract action identifications are not always suited to regulate actions, especially if the matter is unfamiliar. If we return to the example of *living healthy*, one recognizes that this abstract identification does not provide what has to be done in order to reach the goal of a healthy status—a problem for individuals lacking the knowledge of what constitutes healthy living. Thus, the theory holds that for the purpose of regulating their actions, individuals move down in the action identification hierarchy to a reasonable and achievable action identification level, which allows them to successfully perform actions in their goal pursuit. This representation of an action is the *optimal* action identification given the circumstance (optimal hypothesis, Vallacher & Wegner, 1987; Vallacher & Wegner, 2012). Thus at first, more concrete action identification could be *buying healthy food at the supermarket* and *increase physical exercise*. Assuming this action identification would not lead to the desired outcome other concrete action identifications will emerge (*join the gym*) to move along with the goal pursuit (Vallacher & Wegner, 2012). Similarly, obstacles during action performance lead to more manageable definitions of the act, i.e., lower and more concrete action identifications. In summary, lower action identification levels are also activated if an

action is difficult, unfamiliar, complex, or fails (Vallacher & Wegner, 1989). Action identification can meet situational demands and is flexible.

3.2 Construal Level Theory

The largest body of contemporary research on cognitive, attitudinal, and behavioral manifestations of mental abstraction is inspired by Construal Level Theory of psychological distance (Liberman & Trope, 2008; Trope & Liberman, 2012). The theory predicts how the psychological distance to a thing determines the abstraction of it. *Psychological distance* refers to the subjective experience of objects and events that are outside of our direct present experience. As such the concept is highly egocentric, because what is psychologically close to me, is not necessarily psychologically close to someone else (Liberman, Trope, & Stephan, 2007). Our direct experience is thus limited to the self (vs. the other) and to what is here, now, and possible rather than impossible (Liberman, Trope, & Stephan, 2007; Liberman & Trope, 2008). Based on this, Liberman and Trope suggested that things that are distant on any of the alternate levels of psychological distance require a higher level of construal, referring to the constructive and interpretative efforts involved in gaining a mental representation of a thing. It is central to Construal Level Theory that with an increase in psychological distance the available information decreases, which leads to more abstract construals.

Examples of this relationship are very plausible. Think about a graduation party that you are about to plan, but you have six more months to complete your degree. Your mental representation of the party in six months' time could include a location or a theme, but at the forefront of your mind will be that you want to have fun and enjoy your newly found freedom from paper deadlines and committee feedback. Then, throughout the final stretch of your degree you have forgotten about the party and the thought returns to you just two weeks prior the event. Your mental representation, according to the assumptions of the Construal Level Theory, will differ somewhat from your previous picture. You might notice, with a glance in your checking account, what you can afford in terms of the decoration, drinks, and snacks. You will decide on a theme and make plans how you can decorate your apartment accordingly and on budget. Maybe you start to think of specific tasks where you might need help from a friend.

Starting from local distance perceptions (Fujita, Henderson, et al., 2006) and temporal distance (Liberman et al., 2002), to social distance (Liviatan, Trope, & Liberman, 2008) and probability as distance (in earlier publications also 'hypothecality', Wakslak, Trope, Liberman, & Alony, 2006), data-driven evidence suggests that the

following association holds true: *the further away a thing is perceived to be at any psychological distance dimension, the more abstract become the mental representation of that thing*. Initial research looked at the construal of actions, largely integrating the concept of psychological distance with Action Identification Theory and showing that temporally distant actions are identified at a higher level (abstract) (Liberman & Trope, 1998, study 1 and 2). Yet, the terminology *thing* in this context should signify that the scope of Construal Level Theory goes beyond actions. Choice options and the construal of task planning (Liberman & Trope, 1998) were investigated as well as preferences (Trope & Liberman, 2000) and later the construal of objects and complex events rather than single actions (Liberman et al., 2002).

Abstractness thus exists on various levels. For example, Section 2.2.1 did discuss abstractness in mental categorization, while Action Identification Theory systematizes a hierarchy of abstractness specifically among actions. Research inspired by the theoretical premises of Construal Level Theory of psychological distance systematically extended the definition of abstract ideas. Due to universality of the effect on all four distance-dimensions (local, temporal, social, and probability) and on a variety of cognitive domains and judgment, the understanding of abstract and concrete construal level in scientific research has shifted in recent years towards the concept of mental processing mind-set (Freitas et al., 2004). In this conceptualization, abstract mental construal refers to a global processing approach during the encoding of new information. An abstract construal level during information encoding involves the primary interpretation and organizing of new information into abstract rather than concrete categories (Liberman et al., 2002) and the use of abstract evaluative categories (Eyal et al., 2008). Additionally, an abstract mind-set indicates a primary focus on abstract knowledge structures and abstract categories, when retrieving information from memory. Central to the conceptualization of a mind-set is that it assumes “an accessible set of cognitive operations that influences how subsequent information is organized and interpreted” (Burgoon et al., 2013, p. 505). While the terminology of abstract and concrete mind-sets wrongfully suggests a variation of kind, in the action identification and construal level frameworks abstraction is always considered a variation of degree. This becomes most obvious in the denomination of *high* and *low* construal levels that Trope and Liberman use. For a uniform terminology and to better reflect the inherent properties across concepts, namely the classification of *things* in inclusive and abstract categories, I adopted abstract versus concrete construal and abstract versus concrete

action identification instead in this work. I use those terms with the explicit assumption of continuum between the two extremes. There are, however, also newer, contradicting approaches. Förster and Dannenberg (2010) suggest two systems, namely the global- and local-focused system, operating based on the affordances of the situation. Novel, distant, and non-threatening experiences are processed by the global system, to integrate them in our knowledge structure and make sense of them. Similarly to the accounts of Construal Level Theory and Action Identification Theory, familiar and threatening experiences are subject to the local, more concrete system. While the influencing factors and processes outlined for this approach allow an integration of different theoretical lines and terminologies under one umbrella, it resembles a dichotomy. The systems approach yet has to define the properties, which decide whether the global or local system is activated, specifically their less extreme ends, and if and how both systems interact. Therefore, this aspect is not considered further in this work.

There is considerable work supporting the claim that the relationship of psychological distance and mental construal is of general quality. For a generalized association of psychological distance and abstract representation, the reverse also has to be true: Things that are mentally represented in an abstract manner are perceived to be farther away on any psychological distance dimension (Liberman, Trope, McCrea, & Sherman, 2007; Rim, Hansen, & Trope, 2012). Returning to the initial example, imagine you are invited to a graduation party. *Celebrating my graduation—save the date* is a very general message that lacks detailed information of where the party takes place or how formal the festivities will be. Most individuals will not expect the party to be within the upcoming week. According to the studies by Liberman, Trope, McCrea, et al. (2007) abstract language will cause an increased temporal distance perception in its receivers. A very specific message with date, location, information on dress code or theme should, according to this logic, achieve a much more prompt perception of when and where the party is going to be like. Semin and Smith (1999) showed that the retrieval of distant past events was linked to the linguistic abstractness of the events. In turn, abstract retrieval cues lead participants to come up with more distant events from memory. Liberman and Förster (2009) argue that understanding an abstract construct requires individuals to distance themselves from their current experience. They add evidence to the general quality of the relationship between construal level and psychological distance by using a perceptual priming task to induce abstract construal instead of the common semantic priming task. The prime is an adaptation of the

previously described letter task (Navon, 1977). In a series of studies, participants with global perceptual priming judged unrelated concepts to be more distant in time and space (e.g., distance estimates between two cities, time until they see a doctor) (e.g., distance estimates between two cities, time until they see a doctor, Liberman & Förster, 2009). Supporting evidence illustrates further, that individuals, who imagine actions that are described in abstract (vs. concrete) terms also pictured those action to be psychologically more distant (vs. close) (Libby, Shaeffer, & Eibach, 2009, Experiments 1a and 1b). Finally, even implicit associations between the construal levels and psychological distance could be established in the past research (Bar-Anan, Liberman, & Trope, 2006).

3.3 Effects of Abstract Thinking on Mental Representation and Judgment

This section's purpose is to present the current state of research that helps linking the idea of abstract thinking (i.e., abstract construal level mind-sets or abstract action identification) to abstract mental representations and evaluations. The empirical evidence reviewed is mostly fueled by the relationship of mental construal level and psychological distance. In the past three decades researchers achieved a parsimonious framework of how abstraction can be present in mental construal. The idea that our minds are organized as associative networks in which knowledge and judgment rely on the same mental representation is central to the association of evaluations, judgments, and abstract construal. With the activation of a representation the activation level of connected nodes of the associative network is also increased (E. R. Smith & Queller, 2001). The literature review strongly suggests that concrete mental representations are most likely related to different evaluative nodes than abstract representations. Research shows that judgments for abstractly construed actions relied on ideological, normative, and de-contextualized categories, whereas concrete moral judgments take contextualized and individualized information into account (e.g., social, cultural background information of the actor). In other words, abstract mental categories most likely have more and stronger nodes relating them to normative, ideological, and higher-order attitude domains than the concrete representations of the same thing.

Furthermore, the accessibility principle claims that attitudes are not only based on new, relevant, or stored information about the attitude object, but also on information that comes to mind most easily (Srull & Wyer, 1979; E. R. Smith & Queller, 2001; Schwarz, 2009). The accessibility of attitudes has been central in persuasion research, because it influences what types of information individuals attend to. Together with this

line of thought, the construal level and the consequent mental representations are assumed to have an influence on our attitudes and judgment. Therefore, I present research supporting the basic associations of construal level mind-sets and corresponding mental representations in Section 3.3.1. The section is structured along a number of indicators that convey abstraction or concreteness in mental representations, namely category breadth, action identification, and linguistic representation. In Section 3.3.2 I introduce numerous accounts of the relationship of abstract representations and evaluations.

3.3.1 Effects of abstract construal on mental representations.

Category breadth. The associative network model of memory holds that new information can be categorized into larger and more inclusive categories, which constitute the high-level abstraction, or in lower, i.e., narrower categories, similar to the abstraction hierarchy in semantic networks (cp. Section 2.2.1). The fundamental claim of Construal Level Theory is that distance fosters mental abstraction. Experimental research on the influence of psychological distance on categorization of information supports this claim. Distant future events are represented in broader categories and are described by individuals more schematic (Liberman et al., 2002, Studies 1 and 2). Correspondingly, individuals' preferences in the near future are based on more complex structures than preferences in the distant future. This is in line with Construal Level Theory, because with less distance the schematic representations decrease as well. Lastly, for near future preferences individuals rely more on detailed information and circumstantial information (Liberman et al., 2002, Study 4). This fundamental series of studies lends strong support to the claim that abstract construal does result in the use of more abstract categories.

Action identification. Like object categorization, the categorization of actions was also found to relate to psychological distance and therefore to be part of the abstract mental construal construct. The categorizations of actions in higher or lower terms is mostly research using the Action Identification Theory, basing most research on the behavior identification form (Vallacher & Wegner, 1989). All dimensions of psychological distance had the same effect on the construal of actions. Distant future actions (e.g., *making a list*) were dominantly described in high level terms (*getting organized*), whereas close future action were identified at a lower level (*writing something down*) (Liberman & Trope, 1998, Study 1). Similarly, these results on the behavior identification form were replicated for spatially distant actions (Fujita,

Henderson, et al., 2006, Study 1), social distance (Liviatan et al., 2008, Experiment 1), as well as likely and unlikely actions (Wakslak et al., 2006, Study 7).

Linguistic representation. Social psychology has long been aware of the fundamental meaning of language for social interaction and cognition, as language reflects mental representations. Language affects cognition as much as cognitions affect language. Semin and Fiedler (1988) criticized that this assumption was lacking a systematic investigation as far as the language goes. They established the linguistic category model to advance the investigation in this regard. The model's logic is that words are categorized into groups according to their distinct linguistic features (Semin, 1994). The usage of words from the different groups allows making assumptions about the cognitive processes of the speaker.

Semin and Fiedler (1988) first established four categories of words, which also represent various levels of cognitive abstraction. Their linguistic category model (LCM) is based on the conceptual hierarchies in semantic networks. It is important to note how the LCM goes beyond semantically broad (i.e., tables) and narrow (i.e., kitchen table) categories, by concentrating on interpersonal language. The categories of the LCM summarize various verbs and adjectives by their attributed functions, which I will introduce hereafter. The most concrete verbs describe actions without interpreting the action. *The mother is holding a baby* or *I visit you* are behaviors that are distinct and can be verified easily (desciptive action verb, Semin & Fiedler, 1988). With increasing interpretation of the behaviors, the level of cognitive abstraction rises. The second category, interpretative action verbs, goes beyond describing and classifies the action (i.e., *I am helping you*, *It mislead me*). Although these behaviors are also easily verified, they do not comprise a single visible action. *Helping* can include a number of concrete actions and behaviors that all can be interpreted in their context as helping (e.g., *watering the flowers to help grandma*, *cutting the bread to help grandma*). State verbs, the third category, go on to describe a person A in a situation with person B (i.e., *A hates B*). State verbs do not refer to an action and a cognitive or emotional state is not visible and even harder to verify by an observer. The most abstract category in this systematization is adjectives. They are mainly descriptive references that serve to distinguish individuals from others. For example, the adjectives help to distinguish a friendly and open person from a reserved and introverted person (Semin & Fiedler, 1988).

Under the construal level framework, Semin and Smith (1999) showed that events that occurred in the distant past (at least one year ago) were construed more abstractly than events that happened in the recent past (not more than two weeks ago), by showing how the language use changed. This finding also supports that mental representations of events become more abstract with removal from time and are stable across different valences, levels of memory importance, emotionality, or vividness of the memory. Abstract language categories further play a major role in intergroup relations. Abstract knowledge structures (i.e., stereotypes) are harder to disconfirm than concrete information, because they are general and globally in their frame of reference. Maass, Salvi, Arcuri, and Semin (1989) first utilized the linguistic category model to demonstrate how intergroup biases are present in language that is used for describing in- and out-groups. Individuals describe behaviors of out-groups in more abstract terms than those of in-groups (Maass et al., 1989; Maass, Milesi, Zabbini, & Stahlberg, 1995).

The main area of application for the LCM is communication in the interpersonal domain or, in other words, how people communicate about other's behavior and traits as well as ourselves and our behavior. However, applications to more broadly defined speech acts are also known. Menegatti and Rubini (2013) used language abstraction scores based on the linguistic category model in their research on political speeches. They investigated the language politicians used when facing either similar or dissimilar audiences. In political speeches, the speech act of interest does include more than just terms describing people and their behavior, they are in other words more complex. The findings conveyed that politicians that faced an audience with similar political attitudes used more abstract language, whereas facing a dissimilar audience led politicians to choose more concrete terms. The logic of this language difference is that convincing dissimilar ones requires more detailed action description. The linguistic category model is established in abstraction research for evaluating manipulations (Fujita, Henderson, et al., 2006) or constructing abstract or concrete stimuli (A. E. Clark & Semin, 2008; Menegatti & Rubini, 2013). Critical thoughts about the linguistic category model include discussions about the exclusion of nouns (Burgoon et al., 2013) and the subjectivity of the classification. The classification of the terms itself is not objective, because it distinguishes words based on their level of interpretation (Semin & Fiedler, 1988).

The present research lends one basic assumption from linguistic psychology: Language can represent cognition. Abstract thinking should, in part, be detectable in language use, especially in speech acts pertaining to action and people description.

3.3.2 Effects of abstract construal on evaluations.

Inferences. Parallel to actions and objects, inferences about the world also have an underlying hierarchy, and they are important in judgment situations. Explaining others' behaviors, for example, ranges from dispositional inferences to situational inferences. Inferences about socially distant versus close individuals from in- or out-groups, for instance, have been a focus in social psychology for a while (Liberman & Trope, 2008). Empirical evidence suggests that descriptions of out-group behaviors over-emphasize the role of individual traits, whereas one's own behaviors are readily attributed to situational factors (Nisbett & Valins, 1987). Moreover, behaviors in temporal (Nussbaum et al., 2003, Study 4) and spatial (Henderson & Wakslak, 2010, Study 3) distance have been attributed to individual dispositions. For future actions, Nussbaum et al. (2003) showed that behavior predictions in the distant future (abstract condition) are made based on de-contextualized and trait-based information compared to behaviors that have to be predicted in the near future. These inferences for future behaviors were consistent when participants had to predict and causally explain their own behavior in the future. In other words, under abstract construal conditions behavior is attributed to traits, whereas in the concrete construal condition behaviors are judged based on the situation they occur in as well.

Goal desirability. Goal-directed actions and behaviors have an implicit or explicit goal as end state. The evaluation of this goal can rely on high- and low-level considerations, which have systematical similarity to abstract and concrete construal. At a high level the desirability of an end state is considered. It can also be understood as the general benefit of the end state, which is independent of context and superordinate to the individual costs. On the lower level of this dimension, which is the more concrete level, are feasibility concerns. They incorporate concrete means and costs necessary to reach an end state. Feasibility concerns are subordinate to desirability, as they may vary across individuals, time, and situations, whereas the end state is stable. For example, the outcome of studying for an exam is passing or getting a good grade, which is rather universal across a variety of students and therefore decontextualized and independent. The time invested to reach the desired end state, however, varies greatly amongst different students and thus counts as feasibility concern (Liberman & Trope, 1998).

Much theorizing places the desirability-feasibility distinction at the core of abstract and concrete construal.

It is expected that with an increase in temporal distance to an action, the desirability considerations become more dominant, whereas the importance of feasibility concerns decreases, thereby influencing judgments. In an example Liberman and Trope (1998) confronted participants with the choice of buying concerts tickets for a show the next day or next year. Participants rated the importance of price (feasibility) versus liking the band (desirability). While desirability was dominant for near and distant decisions, it became strongly dominant in the distant future condition and feasibility decreased slightly.

Time is a feasibility concern and Construal Level Theory would predict that individuals in an abstract construal mind-set should underestimate feasibility concerns. Time estimates have repeatedly shown to be sensitive to psychological distance as well as to construal level mind-set primes. Time contraction, the shortening of objective time intervals, happens when the action is in the distant future (vs. near future) (Liberman & Trope, 1998; Kanten, 2011) or when individuals are in an abstract mind-set (Kanten, 2011). This leads individuals to plan many activities in the future, when the time constraints are biased and feasibility is less salient. In turn, the closer the time of the activity gets, the more salient are actual time constraints (Liberman & Trope, 1998, Study 5). This also partially explains procrastination effects in participants, who received tasks after an abstract construal level mind-set induction (McCrea, Liberman, Trope, & Sherman, 2008).

Higher-order evaluations. An abstract construal level is related to higher-order evaluations. Idealistic and moral judgments count towards higher-order evaluations, because first-and-foremost they are not context specific, that means they are absolute claims, like *eating a pet is wrong*.[7] In a number of studies Eyal et al. (2008) showed that participants applied moral principles in temporally and socially distant situations more readily. The researchers, of course, assumed that distant events are construed more abstractly. In a restatement task participants could choose between abstract and concrete restatements of the same action, all of which were morally charged (e.g., eating one's own dog) at near or far temporal distance. On average, participants chose an abstract

[7] Morality is culturally constructed and divided along socio-economic status lines, among others (Haidt, Koller, & Dias, 1993). Thus all action evaluation are based on the cultural and socio-economic background of the perceiver. It goes without saying that this research review relies heavily on research conducted using predominantly white, western, and student samples.

restatement (i.e., dishonoring a dead pet) over the concrete restatement (i.e., eating the meat of a dead dog) when the action was set in far temporal distance (Eyal et al., 2008, Study 1). The scenarios overall were restated more often in abstract terms, confirming the initial claims by Vallacher and Wegner (1987) that in case two action identifications are available and feasible, individuals will tend towards the more abstract one, as it helps to give broader meaning to a single event.

Eyal et al. (2008) generalize their findings in the light of Construal Level Theory as support for the link between abstract construal and social judgments. This conclusion was doubted, because studies not using distance to perpetuate abstract construal but a mind-set manipulation failed repeatedly to replicate the association between abstract construal and moral evaluation (Gong & Medin, 2012). In these replications, abstract construal was primed by tasks that induce abstract or concrete thinking style (see more in Section 4.1.2). Contrary to Eyal et al. (2008), participants overall judged morally offensive actions more harshly when they were in a concrete construal mind-set. Gong and Medin (2012) discuss various possibilities why the previously so stable and strong link between construal and psychological distance does not hold for moral judgments. Concreteness influences perceived credibility of actions and thus could be one possible nuisance (Hansen & Wänke, 2010). Secondly, concrete descriptions of actions are more imaginable. Both previous arguments rely on research on abstract and concrete expressions (Semin & Fiedler, 1988) and their impact on the vividness of mental imagery. Lastly, Williams, Stein, and Galguera (2014) argue that construal level and psychological distance vary significantly in terms of their affective influence. In this view, distance reduces the intensity of affects, but abstract construal has been related to more positive evaluations (Eyal, Liberman, Trope, & Walther, 2004). The consequent predictions for the same actions are opposite. Consider the joy (or drag) of buying a new car. If construed in a distant future scenario the joy should be less pronounced, because it is not as vivid to the person, whereas in the abstract construal logic presented, the positive associations should dominate the negative ones. A series of studies exploring this contradiction showed that for actions that are associated with emotional evaluations (i.e., donating money to an organization or helping others with daily tasks) construal level primes and psychological distance primes led to the opposite results (Williams et al., 2014).

Stereotypes and prejudice. Stereotypes and schemata are forms of generalized knowledge structures and as such have been linked to abstract construal (cp. Section

3.3.1). While abstract knowledge structures are not inherently negative or positive, their use in individual judgment situations can have biasing effects. For example, participants were given a mind-set manipulation (Freitas et al., 2004) to induce abstract or concrete processing and then read a job posting for a software engineer position and then applicants portfolios. The first two applicants were one man and one woman, with equal qualification portfolios. Participants in the abstract mind-set condition rated the male applicant to have more job-related traits, were more likely to hire him, and rated his likelihood to hold a leader position more likely than that of the female applicant. The differences were not observed for participants in a concrete construal level mind-set (McCrea et al., 2012, Study 1). The authors posit that an abstract construal of the job posting lead to more readily applied sex stereotypes (i.e., software engineers are typically male) that influenced the following evaluation. The researchers attributed this result to the activation of social categories by the abstract mind-set. Although the authors measured fairness, there was no significant difference between the abstract and the concrete construal level group. Fairness is a higher-order (abstract) evaluation. These effects are directly contrasted by the following findings for prejudice.

Prejudices are defined as affective and evaluative dimension of stereotypes (Allport, 1954). Luguri, Napier, and Dovidio (2012) claim that abstract construal levels lead to more tolerance and less prejudice reactions to dissimilar others for conservative participants. To test the assumption that abstract construal results in more abstract evaluative associations like justice, morality, and fairness, three studies were conducted. Individual's abstract action identification tendency and two different abstract (vs. concrete) construal level mind-set manipulations reliably reduced prejudiced feelings against non-normative groups. In the third study thoughts about fairness mediated the effect of abstract construal on feelings towards non-normative groups (Luguri et al., 2012). In the study by Luguri et al. (2012) the underlying assumption was that an abstract mind-set and the resulting mental representations, are associated with other evaluative categories than concrete representations. Abstract mind-sets have repeatedly had associations to higher-order attitudes, which resembles the logic applied by Eyal et al. (2008). Abstract action identification tendencies are related to empathy and the willingness to help others (Levy, Freitas, & Salovey, 2002, Studies 4 to 6). Evaluations can change as a result of near and distant future manipulations. In a study on political decision-making, participants judging a distant future policy change (which was thus construed abstractly) reported to vote on political issues (e.g., euthanasia) according to

their consistent values and principles (Ledgerwood, Trope, & Chaiken, 2010, Study 3). In comparison, the same policy decisions in the near future (and thus a concrete construal) were rather determined by the partner's voiced attitude, than by ideological considerations.

Favorability. Abstract construal has been associated with more favorable evaluations. When participants had to come up with pro and contra arguments for changes in examination policies of their university in a study by Eyal et al. (2004), they came up with more positive arguments when the policy changes were set in the distant future. Trope et al. (2007) argue that pro arguments are superordinate to contra arguments when participants are in an abstract construal mind-set, similar to desirability and feasibility arguments, because the subjective importance of an action or event is reliant primarily on its favorable aspects rather than the unfavorable ones (Eyal et al., 2004). Contra arguments are less relevant in abstract situations and become more salient only with more concrete thoughts (Herzog, Hansen, & Wänke, 2007). Finally, the ease of argument retrieval influences the attitudes towards issues (Schwarz, 1998). Participants in a study by Herzog et al. (2007) found it harder to generate unfavorable arguments when the subject matter was set in the distant (vs. near) future. The ease of retrieval then further mediated the attitudes of participants, so that participants reported more positive attitudes for the distant future situation compared to the near future situation.

Persuasion. Within the Construal Level Theory framework, abstract construal level is assumed to make individuals more attentive to high-level arguments. This includes morals and normative attitudes, but goes beyond. If abstract construal mind-sets are matched with abstract persuasive arguments, they can result in stronger persuasion effects (Fujita, Eyal, Chaiken, Trope, & Liberman, 2008). Students reading a course description in a course catalogue received arguments by former students about the merits of the course. One group considered the course being offered next semester (vs. next year) and then evaluated the course. The experiment was designed so that one groups received more high-level arguments supporting the class (*fair grading* or *helpful professors*) in relationship to low-level arguments (*lecture hall facilities* or *lack of weekly discussion sections*) and vice versa. In the distant future condition students rated the course more positively, if it was supported by more high-level arguments. In the proximal condition, no such difference was made out (Fujita et al., 2008). Additionally, participants of a second study were more persuaded to buy a product in the distant

future, if the message emphasized desirability of the product (high-level argument), but with feasibility (low-level) arguments in the near future (Fujita et al., 2008). Both studies imply a congruency principle between the level of construal of the attitude object (here manipulated by the temporal distance to the object, and the level of abstraction of the argument). In a third study, Fujita et al. (2008) extended their test to the role of argument strength. Commonly, under the elaboration likelihood paradigm, message scrutiny would be expected to decrease with more psychological distance, due to the decrease in personal relevance. Participants again displayed a general preference for abstract arguments for temporally distant decisions and concrete arguments for temporally close decisions. However, Fujita et al. (2008) proved that construal had an independent influence on message scrutiny. Only when the distance and the level of abstraction in the argument were matching, individuals also attended to the argument's strength. So this research program underlines how the mental construals of an attitude object guide individuals' attention when they evaluate arguments.

In a similar vein, Ledgerwood, Wakslak, and Wang (2010) explored the influence of the message source in the decision-making for buying typical consumer household items, like a toaster and a migraine drug. Distant and abstract decisions were much stronger influenced by aggregated information, like consumer ratings or effectiveness statistics, compared to proximal decisions. In proximal decisions, individualized accounts of the products by costumer reviews were still less influential, but their relative weight was higher than in the abstract decision condition.

Self-control. Self-control is an important link between attitudes and behavior. Humans exert self-control in order to achieve goals and act on our attitudes. Self-control suffers, if long-term goals are conflicted by short-term costs (Fishbach & Trope, 2005), for example by the strain of dieting and maintaining physical fitness to achieve the long-term goal of living healthy. As such, it is also a common concept in explaining health behaviors. Construal Level Theory has an important role in the theorizing about self-control. Concrete, low construal levels emphasize means and resources in social cognition. In light of the actual costs, self-control is harder to maintain. In turn, abstract construals facilitate self-control, because they stress the goal and the idealistic meaning of a single action (Agrawal & Wan, 2009). Agrawal and Wan (2009) showed that individuals who were primed with an abstract level of construal took more time to read a long and boring article about dental health. The activity is dull and therefore a short-term cost, it requires high self-control per se. The time spent reading such an article is

an exercise of self-control. The article was also beneficial, because it held information on the long-term goal of maintaining dental health. In an additional measurement of self-control, participants with a more abstract construal level later also flossed their teeth longer.

3.4 Consequences for the Present Research

This chapter provided an overview of what may be entailed in abstract (or concrete thinking). It introduced the two theoretical frameworks, Action Identification Theory (Vallacher & Wegner, 1987) and Construal Level Theory (Trope et al., 2007), that have helped to systematize what is commonly understood as abstract thinking. Abstract construal evidentially leads to the use and generation of broader mental categories. Abstract mental representations also have various associations with abstract evaluative categories. For example, the dominance of idealism over pragmatism, goal desirability and goal focus over feasibility concerns, positive over negative evaluations, high-level over low-level arguments, the value of situational over individual inferences, and moral evaluations are commonly associated with abstract construal. These evaluations are most likely functional in a majority of cases (cp. Section 2.4). When judging a group of individuals abstractly, because they are far away or lived long ago, knowledge about the individual circumstance is often unavailable or unnecessary. Typical examples would be news pieces about religious or political groups in a country far away or from a time long ago. Moral and ideological absolutes do not require further information, whereas individualized, circumstantial arguments must have more information to grant exceptions and divergent judgments.

A majority of the academic application of Construal Level Theory thus far took place in consumer research, where some works included questions of advertisement processing (Hong & Lee, 2010; Tsai & McGill, 2011) and persuasive health messages (Agrawal & Wan, 2009). From a media effects standpoint, the construal of media messages and their resulting mental representations is also an important factor, influencing what attitudes and judgments media messages can impact. The consequence most likely is that persuasive messages that are subject to abstract construal are also evaluated on higher-order dimensions like idealism. Especially if those behaviors come with personal costs, like international aid appeals, blood donation, or the advocacy of preventive health measures, a positive normative evaluation of health behavior in question is necessary to achieve a positive attitude change in media users and possibly a behavioral outcome. Think about the monetary costs of international aid. Many

individuals, who give money to aid organizations, do in fact feel this expense in their everyday budget and blood donations or organ donation has a direct personal cost involved for the targeted media users. Consequently, media messages that would guide the attention to the personal costs should be less effective.

I predict that abstract construal of health information will thus lead to more positive attitudes, as it possibly guides attention to the normative value of a behavior in public health, while concrete construal of the information would highlight costs. Because of the bidirectional relationship of construal level and psychological distance, I further assume that things construed at a more abstract construal level compared to a more concrete level will be judged as psychologically more distant.

4 Factors Eliciting Abstract and Concrete Mental Construal

The literature review thus far has established that abstract thinking, as a mind-set during information processing, leads to abstract mental representations of reality and therefore can affect social judgments and behaviors in a number of ways. The previous chapter concentrated on manifestations of abstraction in attitudes and knowledge categories. However, abstraction is an endogenous variable. I determine four domains that can bear an effect on abstract or concrete thinking in the media use situation: incidental situational influences, the individual, cultural differences, and the media message itself.

Central to this research thesis are random situational factors. Schwarz (2009) alludes to the social cognition hallmark, stating, "situational influences dwarf the influence of individual's dispositions" (p. 121). These influences are important, if they change the intended message effect towards unintended effects, a problem commonly underrepresented in media effects research. Question to this end could include, whether media users who happen to be in an abstract construal mind-set, end up representing a health message in the media as abstract rather than concrete, wrongfully attributing it with, for instance, less relevance. Especially research applying Construal Level Theory has identified numerous situational cues that relate directly to abstract thinking (cp. Section 4.1). Two ideas have received wide attention by research that this chapter will concentrate on: The priming by random influences and affective cues as situational factors. The priming paradigm is very dominant in this research tradition and illustrates that information processing is not an independent mechanism, removed from its context. For example, mediated message processing can be accompanied by previous social interactions (e.g., a talk, a radio program, a painting) that function as prime. In this chapter, I will first discuss central research on perceptive and procedural primes that influence abstract thinking. Next, the review will cover the idea that affective cues elicit abstraction in mental construal. While conflicting approaches have been proposed, I follow the dominant discourse claiming that affective cues are used as information about the cognitive affordances of the information-processing situation. In this perspective, a positive mood signals an uncomplicated situation, whereas a negative mood signals a complicated or dangerous situation (Schwarz & Clore, 2007). In a similar vein, Action Identification Theory has established that abstract action representations are sufficient to construe benign situations, however situations that are rendered problematic call for a concrete construal (Vallacher & Wegner, 1989).

Secondly, I will discuss individual differences, which have first been theorized by the Action Identification Theory. Although the abstract or concrete identification of an action is very much dependent on situational factors, individuals showed a tendency towards more abstract or more concrete action identification across a variety of domains (Vallacher & Wegner, 2012). Therefore, this tendency should also be a significant factor in explaining how individuals construe and represent a mediated message (cp. Section 4.2).

Third, cultural differences in information processing are an equally large field, but in cultural psychology two dimensions have been identified that influence abstract and concrete construal (i.e., self-construal as well as holistic and analytical reasoning). In this chapter, I will argue that those factors are most elegantly summarized in the conceptualization of collective and individual cultures (cp. section 4.3).

Lastly, when discussing the antecedents of how individuals construe messages, the form and content of the message itself must be mentioned. Media effects research commonly concerns itself with how message content and form can achieve (wanted) media effects. The message itself is not central in this research project, deviating somewhat from traditional media-centered research, adopting a psychological and specifically a social cognition approach. Rather, it will be part of the discussion later on, to assess how the theoretical aspects discussed here, can be useful for message tailoring in the future (cp. Section 8.3.1).

4.1 Situational Factors

4.1.1 Perceptive priming.

Perceptual primes target the attentional scope (cp. Section 2.3). The referenced research in the section on abstract concept encoding (cp. Section 2.3.2) claimed a natural relationship of the human perceptual and conceptual scope. Consequently, researchers have used a variety of perceptive priming tasks to achieve a change in conceptual abstraction-the abstraction of ideas and concepts. While such perceptual tasks were initially designed to measure global or local perceptual attention, they have proven useful in manipulating the perceptual scope.

The Navon letter task (as described in Section 2.3.1) has been broadly used for this purpose. Förster and Denzler (2012) had their participants do a computerized version of the Navon letter task to manipulate the perceptual scope. As conceptual outcome they operationalized category breadth. In a second step, participants judged a variety of atypical and typical exemplars of computer game figures against a prototype

figure. Participants with a global focus judged the atypical exemplars as more typical than participants in the local or control condition. The authors interpret this result as evidence that global perceptual scope lead to wider conceptual perception. Although none of the figures were an exact match, participants in a global processing mind-set included more examples of the figure in one category. Similarly, in a series of studies, Liberman and Förster (2009) could relate a global perceptual scope, achieved through the Navon letters, to greater psychological distance perception on all four dimensions (local, temporal, social distance and probability). Changes in psychological distance are interpreted as a conceptual shift in global and local processing. Furthermore, the changes in global perception were tied to increased social stereotyping—a sign of the use of broader categories (McCrea et al., 2012, Study 5a)—and increased likelihood judgments of unrelated actions (Wakslak & Trope, 2009, Study 4a).

Other perceptual tasks have been developed over time. For example, the so-called Kimchi and Palmer figures (Kimchi & Palmer, 1982) mirror the systematic approach of the hierarchical letters by Navon. A large target shape (e.g., a square) is made up of other, smaller shapes (e.g., triangles). These have been liked to changes in global and local processing in experimental studies, as well. For example, when Wakslak and Trope (2009) manipulated participant's global perception with the Kimchi-Palmer figures, participants assigned an increased likelihood to random unrelated actions, thus relating it to a more abstract (global) construal (Study 4b).

Finally, map tasks were used to target global or local perception by asking participants either to concentrate on the whole shape of a map or a specific detail on the map (i.e., a red star marking a particular place). In a series of studies, Friedman et al. (2003) used the map task and then assessed creativity and categorization (Studies 1 & 2). Participants named more unusual category exemplars and unusual uses for everyday objects in a global-focus condition (vs. the local-focus condition). Both results are read as signs of a broadened conceptual scope. The same method also led to more similarity judgments between two dissimilar objects . While hierarchical letter tasks and the Kimchi-Palmer figures can also be used as measurement, the map test is a sole manipulation task.

4.1.2 Procedural priming.

Unlike global and local focus primes procedural primes were established to train abstract or concrete cognitive operations, like the interpretation and organization of subsequent information (Freitas et al., 2004). The accessibility of such cognitive

operations defines the mind-set with which individuals approach new information. The tasks developed for these purposes usually concentrate on either the abstraction of actions or objects.

Abstraction of actions. A central task to induce abstract or concrete thinking comes from Freitas et al. (2004). Prompted with an activity, individuals in abstract mind-set condition are asked to consider *why* they would do this activity, thereby activating a goal-focus (compare to Action Identification Theory, cp. Section 3.1). In contrast, individuals in the concrete mind-set condition are instructed to think about *how* they would do the prompted activity. This instruction aims to activate feasibility consideration. The task holds that participants perform this procedure three times. For example, the abstract prime would prompt the activity of *working out regularly* and ask participants why they would do that. The first answer could be *to live a healthy live*. Then participants are asked again why the want to live a healthy live. This would be the second instance of abstraction and a potential answer could be, *to be more active*. As a third instance of abstraction, participants would answer to the question why they want to be more active. For the purpose of concrete mind-set activation, participants would go through three subsequent responses to the question, how they want work out regularly. This manipulation of the construal level mind-set has previously shown to influence a variety of cognitive and social constructs associated with cognitive construal. Ledgerwood, Trope, et al. (2010) proved that participants in an abstract construal level mind-set aligned with their partner's view in interviews, while individuals in a concrete did not (Study 2a). In another study, it was supported that ideologies held by the participants influence evaluations more, when participants were primed with an abstract construal mind-set (Ledgerwood, Trope, et al., 2010, Study 4). Construal level mind-sets primed by the how and why tasks also influenced judgment of how likely an event is going to happen (Wakslak & Trope, 2009, Study 3). Abstract mind-sets lead participants to judge random events as less likely. Finally, for conservative participants the abstract construal mind-set lead to more positive feelings towards out-groups, showing more inclusiveness (Luguri et al., 2012, Study 2). In a variation of this priming task, participants are instructed to describe their goals and then asked why or how they want to achieve these goals (Henderson, 2013, Study 2). These forms of goal priming are the most commonly used manipulation of goal abstraction according to Burgoon et al. (2013).

Abstraction of objects. While the previous tasks concentrate strongly on the abstraction of actions, fewer studies work with tasks that are designed to achieve the abstract or concrete categorization of objects. The most widely used task in this subsection works with category generation and leads to similar effects. For this task participants were presented with words, such as actor, king, college, and movie. They were asked to either generate subordinate categories (concrete), by asking "an example of actor is what", or superordinate categories (abstract), by asking, "actor is an example of what" (Fujita, Trope, et al., 2006). This reliably induced a tendency to construe subsequent, unrelated events at higher versus lower construal levels and had a measurable effect on self-control (Fujita, Trope, et al., 2006; Fujita & Sasota, 2011) or attitudes (Ledgerwood, Trope, et al., 2010).

4.1.3 Mood.

In the following section, I discuss mood as influence on construal. At first a concept definition is in order. Even though the impact of affective states such as mood or emotions is a fairly well-covered concept in media psychology, both as outcome of media use (Nabi & Krcmar, 2004; Vorderer, Klimmt, & Ritterfeld, 2004) and as motivational variable in media choice (e.g., Mood Management Theory, Zillmann, 1988), concrete definitions and theoretical conceptualization of *affect* are rare. Research and theorizing about the influence of affect on cognition is a rich field, which can only be covered selectively here. To localize my specific theoretical approach a short overview on various theories is given hereafter, but a specific focus will be on the mood-as-information approach.

Concept genesis and definition. If one is to dissect the human mind into the three traditional faculties, cognition, affect, and behavior, mood is studied under the roof of affect. The term affect is often used as umbrella term (for a detailed analysis of the terminology see Burger, 2013) to summarize affective signals (i.e., facial expressions, color, music), affective feelings (i.e., positive appraisal of a thing that can take the form of emotions and moods), emotions (i.e., anger, sadness, fear), and mood. Historically, affect—as an evaluative quality and as umbrella term for emotions, feelings, and mood—was understood as direct opposition to cognition (i.e., knowledge) (Clore & Huntsinger, 2009; Burger, 2013). However, research from the past decades demonstrated their interrelatedness. I will focus specifically on theoretical modeling and empirical evidence of the relationship between moods and abstract thinking. All affective cues have the potential to influence our information construal (for a

comprehensive summary see Schwarz, 1990; Schwarz, 2012). Definitions of the affective concepts are fuzzy and little specific, but mood can best be defined in comparison to the other concepts. Mood is defined as generic evaluative information (Schwarz & Clore, 2007). Psychology distinguishes mood from concrete emotions, such as anger and fear, which have a clear objective and cause, because mood lacks a clear object and cause (Schwarz & Clore, 2007). Mood is less intense than emotions, lasts longer, and is rather subliminal in nature. Thus, mood can have multiple causes, which build up over the cause of time. Consequently, mood emerges gradually. A series of pleasant or unpleasant events can matter-of-factly swing the mood, but never gather enough intensity to elicit emotions (Burger, 2013). This understanding of mood will be valid for the present research.

Affective influences on cognition. Various hypotheses about affective influence on cognition exist and not all of these hypotheses make specific predictions about mood, but rather affect in general. One concept is affective priming and it assumes that judgments are biased by affect, because memories and interpretations that are congruent with the valence of the present affect tend to be more accessible in a judgment situation (Bower, 1981; Bower & Forgas, 2001). A second hypothesis regards the influence that affect can elicit on cognitive resources. Because valence-congruent representations are more accessible and this is especially true for positive valence material, Mackie and Worth (1989) have argued that individuals in a positive mood process heuristically. Thirdly, mood management and mood-as-resource approaches claim that mood is a motivational factor in information processing. Individuals process information more systematically, because of an innate, hedonic drive to foster positive mood, if the message can serve to maintain the positive mood (hedonic contingency hypothesis, Wegener, Petty, & Smith, 1995). In a negative mood, based on this argument, the processing motivation is reduced. Additionally, positive mood can also function as motivational resource when individuals have to attend to negative information. Positive mood helps to preserve a positive affective state despite the affective costs of processing negative information (mood-as-resource hypothesis, Raghunathan & Trope, 2002). A fourth hypothesis assumes that discrete emotions (i.e., anger, sadness) influence cognitive processes beyond the situation in which these emotions occurred. Anger, for example, is associated with the appraisal of blame. Angry individuals have the tendency to allocate blame in unrelated situations (Keltner, Ellsworth, & Edwards, 1993). Finally, the feeling-as-information approach has generated a broad research

framework. It summarizes both direct and indirect influences on cognition and applications span from emotions and moods, to affective and non-affective feelings. It differs from the other approaches, as it assumes that individuals interpret feelings as information about the current situation and its processing affordances. This approach provides an argumentative basis for the discussion of how mood influences abstraction and therefore will be introduced in greater detail.

Feelings-as-information approach. The feeling-as-information framework is central to the theorizing about the impact of mood on mental abstraction, because its central assumption is that feelings can serve as informational source for cognition (Schwarz, 1990, 2012). The initial interest of researchers focused on a direct impact of mood on information processing (Bless, Bohner, Schwarz, & Strack, 1990), only later empirical evidence showed that the whole range of affective and non-affective feelings also elicit the theorized influence on cognition. In the presentation of the general assumptions, I will use the terminology of Feelings-as-Information Theory instead of Mood-as-Information Theory to credit the various affective domains where this theorizing is applicable.

Two conditions are important in this approach. First, individuals must consider their feelings to be about the current judgment and second, they must attribute informational value to the feeling, rightfully so or not (Clore & Huntsinger, 2009). To illustrate this, consider the famous experiment by Schwarz and Clore (1983), where the investigators interviewed individuals via telephone about their life satisfaction on sunny or on rainy days. On sunny days individuals were generally in a better mood than on rainy days and reported higher life satisfaction. The investigators argue that the difference in reported life satisfaction is due to a misattribution of participant's life satisfaction on their current good or bad mood. The impact of bad weather on life satisfaction disappeared when individuals were made aware of the source of their mood either indirectly ("By the way, how is the weather down there?") or directly ("We are interested in how the weather affects person's mood").

Direct influence. As a direct influence of feelings on information processing researchers assume that feelings are used as heuristic cue in information processing (Schwarz & Clore, 1983, 2003). This perspective posits that individuals make their judgments in part based on a gut feeling and implicitly ask how they feel about an issue (Schwarz & Clore, 1983). The argument holds that individuals perceived their mood to be about the momentary judgment, which is not necessarily an conscious attribution

(Schwarz, 2012). In other words, participants attribute informational value to their feelings. Negative moods deviate from the typical positive mood valence individuals try to maintain and hence are presumed to require more explanation than a positive mood (Schwarz, 2012). Although on sunny days individuals reported higher life satisfaction in all three priming conditions (indirect, direct, no mentioning of the weather), the effects of negative mood in the weather study by Schwarz and Clore (1983) subsided when the cause for the participant's negative mood was made salient and brought the misattribution to the participant's attention.

Indirect influence. Other than the notion that affect serves as heuristic cue, the *cognitive tuning* assumption posits an indirect influence of feelings on cognition. Affect, in this perspective, influences the processing style, because positive feelings signal uncomplicated and negative feelings problematic situations. The human brain reacts to these evaluations of the situation by tuning the cognitive style to meet the demands of the situation (Schwarz, 2012). Much initial evidence comes from persuasion research. Participants in a sad mood process persuasive communication centrally, whereas participants in a happy mood show a more heuristic processing style (Bless et al., 1990; Bless, Hamilton, & Mackie, 1992). While Mackie and Worth (1989) argue that participants in a positive mood have reduced cognitive capacities, no stable empirical evidence for this explanation exists. Rather a positive mood is interpreted as a cue about the cognitive demand of a given information-processing task. In one experiment, Bless et al. (1990) asked participants to concentrate on the arguments in a message. Participants in a positive and negative mood were influenced differently by strong and weak arguments. Argument strength did not affect the persuasive effect of the message for individuals in a positive mood, while individuals in a negative mood were more persuaded by strong arguments. The reliance on argument quality is seen as an indicator of central processing, which means that individuals in a sad mood had the cognitive capacities for high elaboration (Petty & Cacioppo, 1986). Schwarz concludes that individuals commonly rely on feelings for judgment tasks, but the judgments and the behavioral impulses from feelings can vary based on the situation (Schwarz, 2012).

Mood-and-general-knowledge model. An extension of the cognitive tuning hypothesis is the mood-and-general-knowledge model (Bless, Clore, et al., 1996; Bless, 2001), which argues that individuals in a positive mood rely on general knowledge structures more than individuals in a sad mood. It therefore explicates the cognitive tuning assumption by specifying what aspect individuals tune based on their feelings

(Burger, 2013). Similar to the general feeling-as-information theory (Schwarz, 1990), mood is a potential source of information about the nature of the situation in the general-knowledge model. However, differing from previous accounts, the model further claims that benign situations allow individuals to rely on their general knowledge structures, while problematic situations often require attention to details and concrete information from the situation (Bless, 2001). By relying on general knowledge structures the processing demands are lower in a positive situation. Note that this counters the argument claiming that individuals in a happy mood have a reduced processing motivation or capacity and thus rely on general knowledge structures like scripts and stereotypes (Mackie & Worth, 1989; Schwarz, 1990). Empirical evidence to this specific assumption comes from an experiment by Bless, Clore, et al. (1996). Assuming that reliance on general knowledge structures stems from the reduced processing motivation or capacities, this constrains should also influence the performance in a secondary task. The investigators showed that the recognition of items, which previously appeared in a videotaped story, and a secondary task (concentration test) was better for participants in a happy mood. This suggests that participants relied on activated general knowledge during their recognition task, but were not less motivated or capable of processing. In their concentration task the reliance on general knowledge opened up more resources and hence increased their performance.

Mood's impact on abstraction. From this history of theorizing a connection between mood and abstraction emerged. Mood can tune the cognitive processing of information insofar that individuals in judgment situations either feel confident relying on general knowledge structures or not. Problematic within this approach, as Bless (2001) argues himself, is that general knowledge structures are not defined. Research suggest that general knowledge structures summarize the use of abstract conceptual categories in individuals perception (Bless et al., 1992; Bless, Schwarz, & Wieland, 1996; Isbell, Burns, & Haar, 2005), general object identification (Isen & Daubman, 1984), and the use of scripts (Bless, Clore, et al., 1996, Experiment 1). Additionally, happy individuals showed to construe themselves more abstractly (Updegraff & Suh, 2007). In a series of four studies Burger and Bless (2015) further found that mood-induced shifts in construal are responsible for the weighting of pragmatic and idealistic arguments. As the Construal Level Theory suggested, more abstract construal led individuals to rely on more idealistic arguments (Trope et al., 2007).

All these studies support that positive mood leads to a reliance on the more abstract structures. Supporting convergent evidence comes from decision-making research, where de Vries, Holland, Corneille, Rondeel, and Witteman (2012) investigated the impact of mood on dominant choices (i.e., decisions where one option is clearly preferable). Traditional reasoning has it that judgments in dominant-choice situations require and allow less constructive effort, thus leaving less room for incidental influences like mood. The researchers still hypothesized that mood could influence dominant-choice judgments, because mood has proven to impact narrow versus broad conceptual focus (Derryberry & Tucker, 1994) and cognitive flexibility and creativity (Isen, Daubman, & Nowicki, 1987). In one study, using two movie clips, de Vries et al. (2012) manipulated the participant's mood and in a second study they measured participant's mood prior a gambling situation with two choices (coin toss). In both studies, one choice (A) was arguably and based on pretests the dominant choice, promising higher wins than choice B, while both offered the same odds of winning. The coins were tossed in a pseudo-randomized order so that participants experienced worse than the expected 50/50 chance outcome. Participants in a positive mood chose the less favorable option, or switched to the less dominant choice earlier than participants in a negative mood. Based on the experienced outcomes of the coin tosses, adhering to the formal rule was not beneficial. The authors interpret the fact that happy individuals diverge from the dominant choice earlier as higher cognitive flexibility and the reliance on associative and explorative processes, stemming from a conceptually broader focus, rather than a narrower focus on logic and rules.

Further evidence supporting the assumption that positive mood leads to a more abstract cognitive processing is found in linguistic psychology and research using the LCM (Semin & Fiedler, 1988). After a mood induction using short video clips, Beukeboom and Semin (2006) asked participants to describe an unique event from their life they had either recalled after or before the mood induction. In both studies participants in a happy mood used more abstract language to describe their event. Following up on these results a third experiment used different mood induction and had participants describe a short movie clip. The language use between the happy and sad participants was still significantly different, in the hypothesized direction. Happy participants used more abstract language compared to sad participants. Other evidence connects mood to abstraction in the sense of the Action Identification Theory (Vallacher & Wegner, 1987). Beukeboom and Semin (2005) showed that individuals would use

more why-sentences versus how-sentences when asked to form re-descriptions of actions in a happy mood compared to a sad mood. Why-sentences described to what a behavior was performed (e.g., locking the door to secure the house), whereas how-sentence described by what means the behavior was performed (e.g., locking the door by turning the key) (Beukeboom & Semin, 2005). This relationship between mood and the action identification framework is coherent with the feeling-as-information approach, because one underlying argument is that negative affective states render the situation as problematic. The cognitive tuning assumption expects that cognitive processing adapts to the problematic situation by becoming more specific and individuating (Bless, 2001). The same argument can be found in the Action Identification Theory, were one claim is that abstract action identifications are sufficient unless the situation is marked as problematic or novel (Vallacher & Wegner, 1987).

4.2 Individual Differences

The levels of action identification are highly relative to the situation's demands and flexible. Yet, early into the research on how individuals mentally represent their actions, the question about a possible individual difference in action identification emerged. The assumption was fueled by a reliable tendency of action identification across various domains (Vallacher & Wegner, 1989). Although the optimal hypothesis claims, individuals will identify actions on the highest, functional level available to them (cp. Section 3.1); this level of *optimal* identification may still vary between individuals. Some individuals concentrate on mechanical details of actions and others view the world in terms of its consequences and meanings (Vallacher & Wegner, 2012). As action identifications are relative to the situation, a general behavioral trait can hardly be derived. Instead, Vallacher and Wegner (1989) argue that the whole range between concrete and abstract action identifications serves as an individual difference and is determined by personal agency. According to their argument, high-level agents perform actions with the action's higher meanings in mind, while low-level agents do not connect their actions to a broader context. This is conceptually relatable to abstract and concrete construal. A person low in personal agency is, "someone who commonly makes action errors and so must keep focusing on the details of action in order to negotiate the difficult path toward effective action performance" (Vallacher & Wegner, 1989, p. 669; Vallacher, Wegner, & Somoza, 1989). They are further characterized as impulsive, less self-motivated, exhibit less consistent behavior, and show a more

external locus of control. In contrast, high-level agents are portrayed as organized, consistent, and stable in their course of action (Vallacher & Wegner, 1989).

The initial hypothesis for action identification referred to the individuals' construal of their own actions; not until later was this idea transferred also to the construal of other's actions. This opened the theorizing of action identification to a broader application. Levy et al. (2002) showed that the different levels of action identification related to out-group biases. Participants with a more abstract action identification level perceived college professors to be very homogeneous with regard to their morals, social opinions, and intellect. Furthermore, the findings were replicated for stigmatized groups like individuals, who are homeless or individuals with HIV. Abstract action identification allowed participants to adopt the perspective of others; it increased empathy, willingness to help others, the willingness to volunteer, and the willingness and to donate money (Levy et al., 2002). Other investigations could relate action identification to other domains of social cognition. Individuals' action identification was sensitive to the time frame in which the focal action took place. For distant actions individuals chose more abstract levels of identification (Liberman & Trope, 1998, Study 1). Likewise, local distance to the actions produced the same pattern (Fujita, Henderson, et al., 2006, Study 1). Finally, the increase of social distance through a third person perspective to an action (vs. a first person perspective) led individuals to identify actions more abstractly in mental images and visual images alike (Libby et al., 2009, Experiment 1a).

Action Identification Theory offers a framework for individual differences in cognitions about actions on the continuum from abstract to concrete mental representation. This approach reflects personal agency at its core and provides a trait perspective on how individuals generally go about their life in terms of goal-directedness and anticipation of effects of their actions. As such it provides an interesting concept in media effects research and particularly for persuasive media messages that are set out to influence a change in behavior. These behavioral appeals, even at the most latent level, will translate into a mental representation in the media users mind. The general level of abstraction of said representation should be crucial in determining behavior and thus makes the individual difference in action identification an important component in determining how abstractly media users construe and represent a persuasive message.

4.3 Cultural Differences

Psychology had a vested interest in differences in reasoning and thought between cultures for the past twenty years. Culture is often defined using a consensus-centered approach, arguing that cultures are shared norms, values, and beliefs of individuals living in local proximity (Medin, Unsworth, & Hirschfeld, 2007). This view, however, maintains a static, law-like definition of culture, potentially underestimating inherent variations in said beliefs and norms. Cultural psychology has thus adopted a more liberal approach, by investigating not what individuals think, but how they think and made reasonable claims along a limited number of dimensions that allow to differentiate cultures[8] based on individual trait dimensions (Medin et al., 2007). I will concentrate on three dimensions of cultural differences that have been identified in anthropological as well as psychological theorizing and that can be directly linked to the proposed differences in abstract thinking between cultures. On an anthropologic level, a central factor in explaining cultural variations in abstract or concrete thinking is the difference between predominantly collectivistic and individualistic societies (cp. Section 4.3.1). On the individual level, the self-construal as independent or interdependent individual (cp. Section 4.3.2) and holistic and analytical thinking styles (cp. Section 4.3.3) were related to abstract thinking. Most notably these three lines of theorizing rely on similar if not the same anthropological assumptions, which I will lay out briefly hereafter, before discussing the dimensions in detail in the following sections.

First, the cultural differences in abstract thinking are anchored in the anthropological observations, that individuals are challenged with fundamentally different tasks in their ecosystems (Edgerton, 1971). For example, in traditionally collectivistic cultures tighter family bonds are traced back to the historic, economic, and even geographical reasons. Agricultural societies show larger families, clans, or tribes, because it took many hands to organize their complex everyday tasks. Those societies coincide with collectivistic societies. In contrast, hunter and gatherer societies have smaller family units, so do the modern industrialized societies (Hofstede, 2001). The social organization has further perceptual consequences. On the one hand, individuals from collectivistic and individualistic societies have different self-construals (independent vs. interdependent) and consequently differ in their everyday attributions based on the relative importance of their surroundings (Kühnen et al., 2013). On the

[8] I am well aware of the critical dimension of this terminology, but due to the limited space in this work for this topic area, I will continue to use “culture”, adopting a majority assumption for all claims made.

other hand, members of agricultural societies tend to display more field dependence, because of their natural need to work together and care for each other. Field dependence is the perceptual attendance away from oneself to the social field (Nisbett et al., 2001) resulting in a broader perceptual scope, quite similar to theorizing on abstract perception (cp. Section 2.3.1).

Furthermore, the logic of contrasting countries with a longer history of industrialization against those countries with lesser industrialization all too often fits another overused dichotomy—the discrimination of Western versus Eastern cultures. The dichotomy of Eastern and Western cultures is often related to philosophical orientation. Greek philosophy, as nub of modern Western cultures, has emphasized personal agency and the social organization was considered a loose bond of individuals, who lived their lives to their own liking, obedient only to laws. Chinese philosophy is usually considered in direct contrast to Greek philosophy. Chinese philosophy assumes that individuals belong to a tight-knit collective and that behaviors of any individual should be targeted toward the good of the collective (Hofstede, 2001; Nisbett et al., 2001). This mirrors the contrast between collectivism and individualism as well as the related self-construal. Moreover, also metaphysical believe systems differed between these philosophies. Greek philosophers were concerned with formal logic to explain events, categorizing objects with precision and extracting the pure essence of it-in other words concreteness. Chinese philosophy had a more pragmatic approach in their metaphysics. Categorization of objects and events relied more strongly on similarities and relationships between the objects, instead of rules and patterns (Nisbett et al., 2001; Norenzayan, Choi, & Peng, 2007). With this distinction the core difference of holistic and analytical thinking style is captured. Both of these orientations developed in reciprocity with the very different economic and social systems, linking them to China's traditional agricultural society and Greece's hunting and gathering society (Norenzayan et al., 2007). Thereby the philosophical argument confirms Hofstede's theoretical derivation of collectivism and individualism.

In the cause of theory development, the discussed dichotomization of Westerners versus Easterners has been criticized for its ignorance of internal heterogeneity as well as the assumption of national cultures. The differentiation has been taken to the extreme in a vast number of publications speaking of Westerners and

Non-Westerners.[9] This becomes even more relevant, if one is to look at the methodological definition of Westerners and Easterners. While Non-Westerners are represented by a number of East Asian nations (exceedingly often by Korean, Japanese, Chinese nationals), Westerners are almost always represented by Americans (Norenzayan et al., 2007).[10] The conclusion drawn from this is twofold. For one thing, the American nationals are prototypical Westerners. However, comparisons within the two categories Westerners and Non-Westerners are needed to achieve an understanding of the importance of these categories. This would be warranted given that also so-called Western societies have experienced numerous social systems with various notions of collectivism: socialist and communist societies as well as national socialism included some form of interdependence and collectivistic ideals.

4.3.1 Individualistic and collectivistic societies.

A central dimension to cognitive difference is the individualism-collectivism distinction. At its core this dimension describes the relationship of the individual with the collective in a society (Triandis et al., 1986; Hofstede, 2001). Individualism defines a society with loose ties between the individual and the collective, where everyone is only responsible for him/herself and the immediate family. Collectivism, on the other hand, is defined as life-long integration into a cohesive in-group, associated with protection and loyalty (Hofstede, 2001). One example of the impact of collectivism/individualism is the family, which is often understood as a model of society, in which values and beliefs are practiced and learned. Beside the mentioned size of families, collectivistic societies also show greater vertical integration (i.e., relationships across generations). Hofstede (2001) mentions, for instance, that children in individualistic societies tend to leave the family home earlier or that elders are increasingly often not cared for at home, but in care facilities. The importance of the individual and the individual's preferences is higher in individualistic societies. This distinction has gained academic attention across disciplines with Geert Hofstede's cross-national study of the organizational cultures at IBM affiliates. Initially four dimensions (uncertainty avoidance, collectivism/individualism, feminism/masculinity,

[9] This egocentric terminology was most likely coined by the strong research efforts in traditional Western countries, especially the United States of America and has been adopted from there on.

[10] Noteable exceptions are studies including at least a sample of different nationalities considered Westerners (e.g., Gudykunst et al., 1992; Kühnen, Hannover, Roeder, et al., 2001) or recognizing and analyzing American cultural heterogeneity (e.g., Marquez & Ellwanger, 2014) .

and power distance) and later a fifth dimension (long-term orientation) emerged from this long-term study (Hofstede, 2001).

The self-proclaimed sociological/anthropological approach is not without criticism. Apart from methodological issues (Baskerville, 2003), Hofstede's work has been so broadly relied upon, that is has experienced great over-emphasizes and over-generalization. While Hofstede's research and scale development as such were set in the study of organizational culture, it has quickly become a model for the study of culture (Baskerville, 2003; Hofstede, 2003). Reading Hofstede in an oversimplified manner would, in fact, allow assuming that his work equates nations with culture and organizational culture dimensions with cultural differences. The reason the five dimensions of culture were able to endure in academic literature, however, is most likely that the dichotomy of Hofstede's dimensions of organizational culture rely on a few broadly accepted social and historical differences (cp. Section 4.3) and present a rather coherent framework. However, especially for the collectivism/individualism dimension more fine-tuned sociological and psychological theorizing exists (Triandis et al., 1986; Schwartz, 1990; Markus & Kitayama, 1991) which I will review in the following section.

4.3.2 Self-construal as cultural difference.

In Hofstede's analysis collectivism and individualism are opposite ends of a bipolar scale. On an individual level, however, collectivism and individualism are understood as coexisting orientations of an individual towards the self and the collective. Markus and Kitayama (1991) differentiate individuals' construal of the self in relationship to others as either *independent* or *interdependent*. The difference between the two is often tied to the existing cultural conventions of how individuals are seen. In its most extreme form independent cultures view individuals as self-contained and autonomous, with a unique set of dispositions, which also guide their behavior. Contrary to this view, interdependent cultures share a perception of the individual as being intertwined with the collective surrounding him/her. From this a widely supported assumption follows, that collectivistic cultures foster interdependent self-construal, whereas individualistic cultures reinforce independent self-construal rather than interdependence. It could be inferred that in abstract thinking the integration of various examples into a central category requires individuals to assume inter-relations and dependencies, whereas for a concrete thinking style individualized observations suffice.

These tendencies have been proven to determine cognitions in both social and non-social situations. For example, interdependent selves are expected to be more sensitive to others and context, which is predicted to increase the amount of elaboration about these areas. This, in turn, is expected to influence non-social activities such as categorization (Markus & Kitayama, 1991). Experimental evidence by Kühnen et al. (2013) shows that independent self-construal causes stronger dispositionism (i.e., the tendency to attribute behavior to personal dispositions rather than circumstance, cp. Section 3.3.2). Dispositionism is associated with abstract mental construal (Nussbaum et al., 2003), and the same notion is strongly supported by cross-cultural research comparing American participants with Japanese (Miyamoto & Kitayama, 2002) or Korean participants (I. Choi & Nisbett, 1998). The cross-cultural experiments found that in a no-choice situation Japanese and Korean participants were less prone to attribute behavior to disposition.[11] Both nations (Korea and Japan) are localized on the opposite end of Hofstede's collectivism/individualism distinction compared to the United States of America. These national cultures are therefore expected to show strong differences in self-construal correspondingly (Morris & Peng, 1994; Miyamoto & Kitayama, 2002). In an experiment by Kühnen, Hannover, and Schubert (2001), even primed self-construal has led to a stronger abstract (contextualized) versus concrete (decontextualized) perceptual focus (cp. Section 2.3.1).

4.3.3 Holistic and analytical reasoning as cultural difference.

Nisbett et al. (2001) argue that differences in reasoning that are rooted in philosophical, social, and economic differences in the past continue to exist even today between industrialized cultures. They differentiate holistic reasoning from analytical reasoning. Holistic thoughts are defined by an orientation towards the context, similar to field dependency, including an attention towards the relationship of objects with their context. Prediction and explanation are strongly shaped by these relationships. In contrast, individuals with analytical reasoning detach the object stronger from its context and rely using rule-based categories and reasons to predict and explain the object's actions. As such, analytical reasoning mirrors much of what is discussed in concrete construal and holistic reasoning resonates with abstract construal on matters of inference or categorization (cp. Section 3.3.1).

[11] The experiments cited here are investigating the correspondence bias, the notion that even if behavior is rather obviously determined by the situation, individuals tend to attribute it to the actor's dispositions (Miyamoto & Kitayama, 2002).

When considering cultural differences, the relationship between cognitive style and self-construal are studied explicitly by Nisbett et al. (2001) referring in their argument to both Markus and Kitayama (1991) and Hofstede (2001). They claim that collectivistic cultures as well as an interdependent notion of the self result in holistic rather than analytical reasoning. Research results support this assumption. Masuda and Nisbett (2001) showed Japanese and American participants underwater scenes with plants, rocks, and fish swimming. A focal fish was larger and brighter than the rest, and participants were simply asked to describe what they saw. As predicted, Japanese participants began by describing the overall scene, while American started by referring to the focal fish. Although both groups made equally many mentions of the focal fish, Japanese participants made considerably more statements about specific background items and relationships between the objects. Another paradigm brought similar results. Americans and Japanese participants were asked to take pictures in an urban environment, which were later analyzed. Pictures from American participants displayed objects standing out from the scene, while Japanese urban scenes showed objects and surroundings equally represented (Miyamoto, Nisbett, & Masuda, 2006). This relationship has conceptually also been connected to perceptual field dependency (Norenzayan et al., 2007) and Gestaltist's debate (cp. Section 2.3.1) about the relation between the object and the ground (Morris & Peng, 1994).

Holistic and analytical reasoning moreover has a strong impact on inference and causality. In both social and non-social cases, American participants perceived causality to originate from a focal object, while East Asian participants explained causality with reference to the context (Morris & Peng, 1994; I. Choi & Nisbett, 1998; I. Choi, Nisbett, & Norenzayan, 1999; Norenzayan, Smith, Kim, & Nisbett, 2002). For example, Morris and Peng (1994) analyzed reports on murder cases in both American and Chinese daily newspapers. Coding of locus of attribution differed significantly between Chinese and American reporters (Study 2). American reports had a higher tendency than Chinese reports to fundamental attribution errors (i.e., the wrongful attribution of behavior to disposition rather than circumstance). The results were replicated for readers of a murder report. American readers, compared to Chinese readers, were more likely to attribute the murder to traits than situational factors (Morris & Peng, 1994, Study 3).

Experimental evidence, however, is scarce. As proxy, priming literature is often cited. In an meta-analysis of collectivism/individualism priming literature, Oyserman and Lee (2008) find convincing evidence that differences in holistic and analytical

cognitive style do in fact relate to the chronic salience of the self in relation to the collective (cp. Section 4.3.2). Self-construal can be directly linked to a holistic thinking style. Yet, conflicting evidence exists from Marquez and Ellwanger (2014). They measured self-construal and field dependence, finding none of the commonly associated relationships to cognitive style. This suggests that cultural differences, as discussed by Hofstede (2001), cannot only be seen as the sum of individual differences. Rather than caused by self-construal, difference in cognitive style parallel to self-construal has to be attributed to a complex array of cultural differences, which likely exert independent effects on the outcomes.

4.4 Summary

This chapter has introduced a variety of research areas that all contributed factors of abstract and concrete thinking. A situational mind-set, which is a dynamic construct, is expected to influence the construal of information, as is the current mood state. It is predicted that the processing mediated information in an abstract construal level mind-set would lead to more abstract mental representations relative to a concrete construal level mind-set. As presented above, perceptual and procedural primes in cognitive psychology concentrate either on the abstraction of actions or objects. Their effect as actual mind-set has not received thorough investigation. Mood is discussed as situational factor, which can influence the construal level as well. A positive mood, as was established above, signals a nonthreatening situation where abstract mental representations are effective. A negative mood leads to a stronger problem focus and consequently a concrete construal level mind-set is predicted.

Action Identification Theory offers an individual difference factor, which is defined as general propensity to approach the identification of actions as abstract or concrete. Concentrating on action, it should be at least partially related to the construal of mediated information, particularly in the domain of action related information and thoughts.

In the process of analyzing situated cognition in media effects research, cultural influences are another possible determinant of cognitive abstraction. Cognitive difference in self-construal and holistic/analytical thinking style show conceptual similarity with abstract and concrete construal of complex situations. A holistic thinking style and an interdependent self-construal are both associated with stronger context integration. I inferred that in abstract thinking the integration of various examples into a

central category requires a consideration of inter-relations and dependencies, whereas for a concrete thinking style individualized observations are the basis for judgments.

The influences of self-construal as trait and cognitive style (holistic vs. analytical) are likely independent, but they are credited to the same complex historical, social, and economic differences between cultures. Based on this shared theorizing, the individualism/collectivism dimension is still continuously used as a basis of comparison, as it captures cognitive variations among national cultures most prominently on an aggregated level (Morris & Peng, 1994). The collectivism/individualism differentiation is functional in this present research to investigate intercultural differences in abstract and concrete thinking styles. It is predicted that individuals with a collectivistic cultural background have a more abstract construal of mediated health messages than individuals from an individualistic cultural background. It is seen as a given, that this cultural variable warrants a majority insight of cultural differences and has to be critically reflected.

5 The Present Studies

This chapter's goal is to summarize the rationale for the present work, based on the theoretical and empirical literature review in the last four chapters. I will provide six general research hypotheses and two exploratory research questions. The general research hypotheses are specified further for testing in the process.

The central reasoning presented in this work relies first and foremost on the assumption that health-related knowledge, attitudes, and behaviors are mental representation of reality that are partially constructed by the exposure to persuasive messages. Health messages, in turn, are persuasive messages that try altering individuals' cognitive, affective, and behavioral attitudes about a health-related topic—specifically, they target shaping the media user's mental representation. Mental representations of any one thing can differ in their level of abstractness, which entails variation in category breadth (cp. Section 3.3.1) as well as variation in the associated descriptive and evaluative categories (cp. Section 3.3.2). Media campaigns often target preventive public health behaviors with outspoken individual and societal benefits, such as condom use or vaccinations. Health topics epitomize the relevance of abstract and concrete mental representation. While at the most abstract level those behaviors are two relatively quick and simple choices (i.e., going to the doctor once or twice, using a condom during intercourse to achieve protection), concrete repercussions are often construed differently. Personal costs are, for instance, pain during the vaccination or loss of romantic spontaneity. Potential risk factors and feasibility of actions are weight against the goals and gains expected from the suggested health behavior. Knowing whether a health behavior is evaluated based on general, idealistic, and moral concerns compared to the associated individual costs and pragmatic concerns, is a central component for predicting the efficacy of such health messages. I argued that such evaluations are predominantly due to how abstract or concrete the media user represents the health information in his/her mind (*message construal*).

The message construal is highly sensitive to context factors, individual propensity, and cultural factors. A typical research design in media and communication studies would entail to manipulate the media's presentation of the health message and then investigate the media user's associated representation, attitudes, and behavioral intentions. Often overlooked in this perspective are factors message designers cannot anticipate. Those ignored situational factors make up the second theoretical fundament for this research. The situated cognition approach assumes a fundamental impact of

circumstantial factors on cognitive processes. For the area of abstract and concrete processing of information, extensive empirical evidence from both Construal Level Theory and Action Identification Theory established that a construal mind-set systematically changes as function of semantic and procedural primes (Wakslak & Trope, 2009; Ledgerwood, Trope, et al., 2010; Abraham, Sheeran, & Henderson, 2011; Luguri et al., 2012; Henderson, 2013) as well as mood states (Isen & Daubman, 1984; Bless, Clore, et al., 1996; Beukeboom & Semin, 2005; Isbell et al., 2005; Beukeboom & Semin, 2006; Beukeboom & de Jong, 2008). Therefore, I propose two experimental studies that investigate the impact of situational factors, individual difference, and cultural difference on the media user's message construal as well as knowledge and attitudes about a health issue. I will summarize the general hypotheses in the following section. An overview of all hypotheses, research questions, and the associated studies is provided in Table 1 at the end of this chapter.

5.1 Hypotheses about the Factors Influencing Message Construal

5.1.1 Situational factors.

The situated construal level has not received specific attention from media effects scholars. Thus, the first general research hypothesis is that the influence of the situated construal level predicts the mental representation of the mediated information (H1). As for the influencing factors it can be assumed that an abstract construal level mind-set as well as a positive mood lead to more abstract mental representations of the mediated health message in direct comparison to a concrete mind-set or a negative mood (cp. Section 4.1).

This assumption is based for one thing on the Construal Level Theory (cp. Section 3.2) and on the mood-as-information approach (cp. Section 4.1.3). The Construal Level Theory claims that the mind has the capacity for abstract, high-level decontextualized, and stable construction of mental representation as well as the concrete, low-level contextualized and detailed construction of mental representations (Liberman & Trope, 1998). Along this continuum a number of factors guide which construal level is used for information processing. One of those factors is the construal level mind-set (Vallacher & Wegner, 1987; Freitas et al., 2004; Trope et al., 2007). Individuals in an abstract construal level mind-set during media exposure will represent the mediated health information more abstractly than individuals in a concrete construal level mind-set (H1a). Additionally, the mood-as-information approach and specifically the mood-and-general knowledge model, assume that a positive mood is associated with

more abstract thoughts, as mood provides information about the situation's cognitive affordance (Bless, 2001; Beukeboom & Semin, 2006; Schwarz, 2012). A positive mood signals a benign and uncomplicated situation, which allows for abstract construal and mental representations. A negative mood usually denotes a problematic situation, which calls for a more concrete construal and mental representation. While these assumptions are widely tested in situated-cognition research, the presented research uses them in a mass media environment. The related prediction holds that individuals in a good mood during media exposure will represent the mediated health information more abstractly than individuals in a negative mood (H1b).

5.1.2 Individual and cultural differences.

Individual and cultural differences are two additional factors that have been tied to abstract thinking. Action identification research could show that the individual tendency to construe actions as either abstract or concrete influences how individuals think about what they are doing (Vallacher & Wegner, 1987). Therefore, I hypothesize that a more abstract action identification tendency also contributes to a more abstract mental representation, as compared to a concrete action identification tendency (cp. Section 3.1; H2). Finally, I predict that cultural differences on the individualism/collectivism spectrum impact the resulting mental representation in the way that individuals from a more collectivistic societal background have a more abstract mental representation than individuals from a more individualistic society (cp. Section 4.3; H3).

5.2 Hypotheses about the Effects of Construal Level

5.2.1 Knowledge.

As I have argued extensively in Chapter 3 and above, the varying degree of abstraction in the mental representation of a health message is expected to further influence what knowledge and attitudes associations are activated. The general assumption of the Construal Level Theory tested in H1a is that individuals with an abstract construal mind-set construct more abstract mental representations than individuals with a concrete construal level mind-set. According to the general associated network theory of memory (cp. Section 2.1) the activation level of abstract information should be higher if somebody construed information on an abstract level compared to an individual construing the information at a concrete level (Srull & Wyer, 1979). Primary information is more abstract and the general information about an issue

and should be activated by individuals decoding information in an abstract construal level mind-set, while individuals construing the same message concretely would also activate secondary information. Hence, I predict that individuals encoding mediated health messages at a more abstract construal level will have better recognition of primary information than participants who construed the same message at a more concrete construal level (H4).

5.2.2 Attitudes and Social Judgment.

Attitudes. The fundamental argument relating abstract or concrete construal level mind-set to differences in attitudes and social judgment broadly relies on the associated network theory. The accessibility principle claims that attitudes are not only based on new information and the relevant, stored information about the attitude object, but rather on the information that comes to mind most easily (Srull & Wyer, 1979; E. R. Smith & Queller, 2001; Schwarz, 2009). Based on the idea of associative networks as well, E. R. Smith and Queller (2001) postulate that mental representations connect not only to related concepts, but also to evaluative categories. In the framework of abstract and concrete construal mind-sets this suggests that the activation of either abstract or concrete mental representations activates distinct evaluative categories as well. In other words, abstract evaluative categories within the associative network should come to mind more easily to individuals in an abstract construal mind-set compared to individuals in a concrete mind-set. Consequently, I predict that abstract and concrete construal level mind-sets during the time of media exposure to health information can play an important role in explaining health attitudes and behavior, because the media user's mind-set at the time of information encoding biases the following information processing and retrieval of arguments.

Section 3.3 summarized a number of abstract and concrete attitude domains. For example, theorizing suggests that favorable attitudes are superordinate (abstract) categories, whereas negative attitudes are rather subordinate (concrete) categories (Liberman et al., 2002; Eyal et al., 2004). A mind-set favoring either abstract or concrete construal would most likely have more access to the congruent attitudes. Further, abstract representations are broader and relate to more normative concepts, whereas concrete mental representations relate to secondary and individuating information (Trope & Liberman, 2012). I predict that individuals with a concrete construal level mind-set decode the health information in more detail and that personal costs, secondary information, or pragmatic concerns are more readily accessible to them.

In contrast, an abstract construal level during message decoding should make idealistic concerns, moral standards, favorable reasoning, and primary information more accessible. The resulting attitudes should therefore be more positive for individuals in an abstract construal level mind-set than for participants in a concrete construal level mind-set, because they construe the message more abstractly (H5). Therefore, I also predict that the situational factor (construal level mind-set and mood, H1a and H1b), the individual factor (H2), and the cultural factor (H3) have an indirect influence on the resulting attitudes, because those factors are predicted to impact the construal of information. H5a to H5d therefore specify a mediating influence of message construal for the main factors.

Social judgment. Based on the Construal Level Theory of psychological distance (Trope & Liberman, 2010), changes in mental construal should impact the psychological distance with which a topic is construed. The bidirectional relationship has found some initial support (cp. Section 3.2), showing that construal level mind-set primes affect the perception of distance in the same way distance primes affect construal of information. Much of construal levels impact on social cognition has been investigated under the premise of exploring the impact of psychological distance on social cognition. In this work the impact of construal levels on the perceived psychological distance to the health topics should be explored. Given the literature review, I hypothesize that an abstract construal mind-set leads to a higher perceived distance to the health topic than a concrete construal level mind-set (H6). Furthermore, if the bidirectional assumption is to be true, a possible indirect impact of construal level mind-set (H1a), mood (H1b), individual differences in action identification (H2), and cultural differences (H3) on the psychological distance judgments, should be explained in part by the message construal. Concretely, I am looking at social distance judgments, probability judgments, and duration judgments.

Social distance. For social distance, I predict that with more abstract message construal, the social distance to the issue is perceived as bigger than with a more concrete message construal (H6a). This would empirically equate to the assumed bidirectional relationship between abstract construal and larger social distance, or concrete construal and smaller social distance respectively (Bar-Anan et al., 2006; Liberman & Förster, 2009; Rim et al., 2012).

Temporal estimates. Not only was a relation between construal level temporal distance demonstrated (Liberman et al., 2002), but also to how individuals construe

durations (McCrea et al., 2008). Time can be conceptualized as a feasibility concern and activities in the far future are usually construed with respect to their goals, I predict that individuals construing the mediated health information abstractly also estimate the related time intervals differently (e.g., how long it takes to get treated; H6b).

Probability. Lastly, construal level theorizing has conceptualized probability (or likelihood) the fourth dimension of psychological distance (cp. Section 3.2). It is important to remember the egocentric nature of psychological distance in this context; distance is always relative to the person. In simple words, the more likely a thing is, the closer it appears to the self, because it also is more likely to happen to oneself. In contrast, an event with lower probability is more distant to the self. Hence, abstract construals have been tied to lower estimates of probability. Then too, concrete construals relate to higher probability estimates (Wakslak & Trope, 2009). Previous findings showed that a higher probability (low psychological distance) led to a higher salience of mean-related, concrete thoughts, whereas a lower probability, which equals a high psychological distance, led to more goal-relevant, abstract thoughts (Wakslak et al., 2006; A. Todorov, Goren, & Trope, 2007; Wakslak & Trope, 2009).

Possible estimates about the occurrence or severity of a public health problems are relevant in this context, because the more severe it is and the more often it occurs, the closer it should appear to the individuals, because it is—in other words—more likely to happen to oneself. In H6, I predict that the mere processing of the health message in an abstract or concrete construal level mind-set will affect participants' perceived psychological distance to the public health issue discussed in the message. Specifically, for probability this translates to the assumption that individuals in an abstract construal level mind-set estimate the likelihood that a public health issue as being lower, which corresponds to it being psychologically distant. On the opposite end, I assume that individuals in a concrete construal level mind-set estimate the likelihood of a specific public health issue as being higher and, therefore, psychologically closer to themselves (H6c).

5.3 Exploratory Inquiry

Subjective experience. So far, the extent to which the media user's naïve judgment of the stimulus material detects the level of abstractness or concreteness has not been under investigation. Therefore, I suggest looking for indicators that allow comparing the media user's subjective experience of the abstraction level presented in media with the other measures of abstract and concrete message construal. This has two

important objectives. Firstly, media and communication research is commonly concerned with judging media content in order to predict attitudes or behavior. In this research paradigm it would be of help to understand if and in how far the scientific modeling of a construct equates to the media user's perception. Secondly, abstraction in media—especially audiovisual media fare—can be *represented* on a visual level (Navon, 1977; Fujita et al., 2008; Libby et al., 2009; Amit, Wakslak, & Trope, 2013; Burgoon et al., 2013), on a semantic (Kay, 1971; Rosch, 1975; Kühnen, Hannover, & Schubert, 2001; Henderson & Wakslak, 2010), or linguistic level alike (Semin & Fiedler, 1988; Semin & Smith, 1999; Beukeboom & de Jong, 2008; Fiedler, 2008; Semin, 2008; Hansen & Wänke, 2010; Burgoon et al., 2013). However, these dimensions are unlikely to factor in the user's subjective experience of abstract or concrete presentation in the same way. The relationship of subjective perception and objectively measured construal level would further enable the first step to relate the mental construal level to different presentation modes.

From the theoretical modeling of abstract and concrete construal levels thus far, the presentation of primary versus secondary information (Trope et al., 2007) as well as broad categories versus narrow categories (Förster, Liberman, & Shapira, 2009) constitutes two important factors that media users could make statements about. Further, the use of detailed versus abstract presentation could be a category where the actual presentation and the perceived presentation might overlap. The question is, how do the media user's subjective perception of abstract and concrete presentation in the mediated message relate to their mental representation of the message (RQ1)?

Narrative experience. A second field of inquiry is how the theoretical concepts construal level and action identification relate to the entertainment experiences of the media user during exposure to narrated media content. The first question would be, what is a narrative, especially in the context of persuasive health messages. What defines a narrative goes back to Aristotle's Poetics (2008). I discuss narrative here as a mode of communication, rather than a formalized genre (Abbott, 2008). The *event* is one of three central components of a narrative. The second component is the *character* or characters of a narrative, which are the actors and subjects of the events. Thirdly, almost all narrative scholars discuss the *recounting* and connection of events and characters by an overt or covert narrator as defining part of the narrative. It is with such an open understanding of narrative that it can be considered a mode for both fictional and non-fictional media. Therefore, non-fictional persuasive health message can be

regarded as narratives, if they include characters and events (Tomaševskij, 1965; T. Todorov, 1972; Chatman, 1980; Prince, 1987; Genette, 1994; Abbott, 2008). A central concept of the media user's experience during exposure to narratives is his/her involvement, which is often used as an umbrella term for different experiences during exposure to media narratives, such as narrative engagement (Busselle & Bilandzic, 2009) or narrative presence (Lee, 2004).

Some rather basic theoretical concepts are recurring in the different media experiences. They all relate to the individuals emotional and cognitive engagement with the narrative and its characters. The cognitive engagement includes phenomena such as the ease of cognitive access (Appel, Koch, Schreier, & Groeben, 2002) and a strong cognitive focus (Csikszentmihalyi, 1997; Green & Brock, 2000; Appel et al., 2002). When individuals focus their cognitive resources on the narrative world, they experience a loss of time (Csikszentmihalyi, 1997; Busselle & Bilandzic, 2009) and a loss of self-awareness (Busselle & Bilandzic, 2009).

Taking the perspective of the narrative's characters or engaging with them emotionally and cognitively is also a recurring prerequisite for narrative involvement. Empathy is a central component for the media user's identification with a character (Zillmann, 1994; Cohen, 2001). It allows the media user to take the character's perspective. Sympathy, on the other hand, is vital for the media user's emotional involvement (Oatley, 1995). In this case, the audience does not feel the same emotions as the character, but actually feels emotions for the media characters (Busselle & Bilandzic, 2009).

How narrative involvement relates to different construal levels has not been subject of investigation. One possible assumption could be that a more concrete construal level could lead to more involvement with the narration, because the media user concentrates more strongly on the secondary, concrete information about the characters and people in the media and therefore can experience empathy or sympathy for them with more ease. A more concrete construal level mind-set could also be associated with a stronger focus on the narrative's specifics compared to the overall gist and allow a more detailed cognitive model of the story world (Green & Brock, 2002). Yet, alternative explanations are also plausible.

Construal level and media presentation could offer the best opportunity for cognitive and emotional involvement when the construal level mind-set and the presentation of the information are congruent. From framing and persuasion it is well

known that motivational and mind-set congruency with message factors is an important gateway to attitude change. Mann, Sherman, and Updegraff (2004) found that gain and loss frames in health messages were most effective, if they were matched to the individual media user's aversive or appetitive motivational orientation. Similar findings from Construal Level Theory research propose a congruency effect of construal level mind-set and abstract or concrete information. Implicit association tests show that words of concrete (vs. abstract) construal level are associated with words related to all four dimension of psychological distance. As predicted words of abstractness (value, categories) associated with words indicating distance (year 2525, there, they), while words of concreteness (item, detail) related to words indicating proximity (now, here) (Bar-Anan et al., 2006). Research suggests that the processing of information is most effective when presentation and construal level mind-set were congruent (Amit et al., 2009; Amit et al., 2013). In addition, Fujita et al. (2008) demonstrated that people attended better to abstract (vs. concrete) arguments when the attitude object was distant (vs. near), which supposedly induced a more abstract construal level mind-set. If congruency of mind-set and message is processed with more ease, it could reduce counter-arguing as well.

Finally, if abstract or concrete construal of media users influences involvement with the narrative, attitudes will be affected indirectly as well. Previous research suggests, for example, that empathy and sympathy with the media characters relate to more favorable attitudes or story-consistent attitudes (Bandura, 2004; Moyer-Gusé, 2008; Murphy, Frank, Moran, & Patnoe-Woodley, 2011). Similarly, cognitive involvement with a narrative has shown to drastically reduce counter-arguing (Green & Brock, 2000; Slater & Rouner, 2002). Therefore, the research question relating construal level mind-set to the media use experiences asks how the media user's narrative experience relates to the situational construal level mind-set, the mental representation of the message, the media user's subjective perception of abstractness and concreteness in the mediated message, and the resulting attitudes (RQ2).

Table 1
Overview of Research Hypotheses (H) and Research Questions (RQ) by Studies

	Hypotheses & Research Questions	Study 1	Study 2
	Factors		
H1	The situated construal level mind-set during media exposure will predict the level of abstractness in the mental representation of the mediated health information.	**X**	**X**
H1a	Individuals in an abstract construal level mind-set during media exposure will represent the mediated health information more abstractly than individuals in a concrete construal level mind-set.	**X**	
H1b	Individuals in a good mood during media exposure will represent the mediated health information more abstractly than individuals in a negative mood.		**X**
H2	Individuals with a more abstract action identification tendency will show a more abstract mental representation of the mediated health information than individuals with a concrete action identification tendency.	**X**	**X**
H3	Individuals from a more collectivistic societal background will show a more abstract mental representation of the mediated health information than individuals from a more individualistic society.		**X**
	Effects		
H4	Individuals in an abstract construal level mind-set during exposure to a mediated health message will show better recognition of primary information than participants in a concrete construal level mind-set, because they construed the information more abstractly.	**X**	
H5	The mental construal of mediated health information affects individual's attitudes towards a public health issue so that an abstract construal will lead to more positive attitudes and concrete construal will lead to more negative attitudes.	**X**	**X**
H5a	Individuals in an abstract construal level mind-set will show more positive attitudes towards the public health issue than individuals in a concrete construal level mind-set, because they construe the health-related information more abstractly.	**X**	
H5b	Individuals in a positive mood will show more positive attitudes towards a public health issue than individuals in a negative mood, because they construe the health-related information more abstractly.		**X**

	Table continued	Study 1	Study 2
H5c	Individuals with a more abstract action identification tendency will show more positive attitudes towards a public health issue, than individuals with a concrete action identification tendency, because they construe the health-related information more abstractly.	**X**	**X**
H5d	Individuals from a more collectivistic societal background will show more positive attitudes towards a public health issue than individuals from a more individualistic societal background, because they tend to construe the health-related information more abstractly.		**X**
H6	The mental construal of mediated health information affects individual's perceived psychological distance so that an abstract construal will lead to more psychological distance in the mental representations relative to concrete construal.	**X**	**X**
H6a	Individuals who construe mediated health messages in an abstract construal mind-set have a higher perceived spatial distance to the health topic than individuals in a concrete construal level mind-set.	**X**	
H6b	Individuals who construe mediated health messages in an abstract construal mind-set judge related time spans shorter than individuals in a concrete construal level mind-set.	**X**	
H6c	Individuals who construe mediated health messages in an abstract construal mind-set judge the likelihood concerning this health topic as lower than individuals in a concrete construal level mind-set.		**X**
	Research Questions		
RQ 1	How does the media user's subjective perception of abstractness and concreteness represented by the media fare relate to their construal of the mediated health messages?	**X**	
RQ 2	How does the user's narrative experience relate to the construal level mind-set, the construal of the message and the media user's subjective perception of abstractness and concreteness in the message?	**X**	

6 Study 1

Organ donation is one of the public health issues concerning both the individual and society. In Germany post-mortem organ donation is organized using opt-in declarations that are not centrally registered or managed, but carried along by the individuals. In 2014, while 80% of a representative German population sample declared a rather positive attitude toward post-mortem organ donation, only 35% actually have an organ donor card (Watzke, Schmidt, & Stander, 2015).[12] The federal center for health education (BZgA) has made organ donation one of their central issues along with blood donation, HIV AIDS prevention, sexual health, and many others. Uncountable items of informative material exist and the topic continues to be in the public debate. As I argued before, little research exists assuming the abstract or concrete mind-set of individuals during media exposure as a factor in the persuasive process. Thus, the first study investigates how different construal level mind-sets during the exposure to a documentary about post-mortem organ donation impact the representation and resulting attitudes about post-mortem organ donation. According to the Construal Level Theory, the abstract or concrete construal level with which an information processing task is approached can influence how the information is understood and translated into a mental representation (Trope & Liberman, 2012). An abstract construal level relative to a concrete construal level mind-set results in more abstract mental representations and this includes mental representations about, "inanimate or animate objects, events, actions, and ideas" (Burgoon et al., 2013, p 503), as was argued in the introduction. Chapter 4 has furthermore identified individual propensity towards and more abstract or concrete construal of actions. The first study aims to manipulate the situated construal level of media users during the exposure to health information directly using a mind-set manipulation (H1a). This way the process could be established formally within the media use environment, and possible applications could be inferred. The study also tests the assumed influence of an individual disposition to approach new information with a more abstract or concrete action identification. The second hypothesis claims that the action identification disposition predicts individuals' construal of mass media health messages (H2). In the literature review it was established further that abstract and concrete mental representations increase the accessibility of congruent attitude and

[12] The German organ donor cards also allow to indicate if someone does not want to be an organ donor. But only 4% of non-donors do have a declaration card. The public knowledge about the organ donor card system was relatively high in this represantative sample (98%).

judgment categories (cp. Section 3.3). Thus, the mind-set during media exposure is expected to affect memory recognition (H4), attitudes (H5a), and perceived psychological distance (H6a and H6b) mediated by the abstract or concrete mental representation (message construal) resulting from the mind-set. All hypotheses are summarized in the model displayed in Figure 2. To further understand the scope of the construal level assumptions in the media use situation the study investigates how subjective experiences of abstract and concrete presentation of media content relates to abstract and concrete mental construal (RQ1). Finally, since mass media often embed persuasive messages in narrative formats, the media user's involvement with the media message was included as potential explanatory factor. Cognitively and emotionally

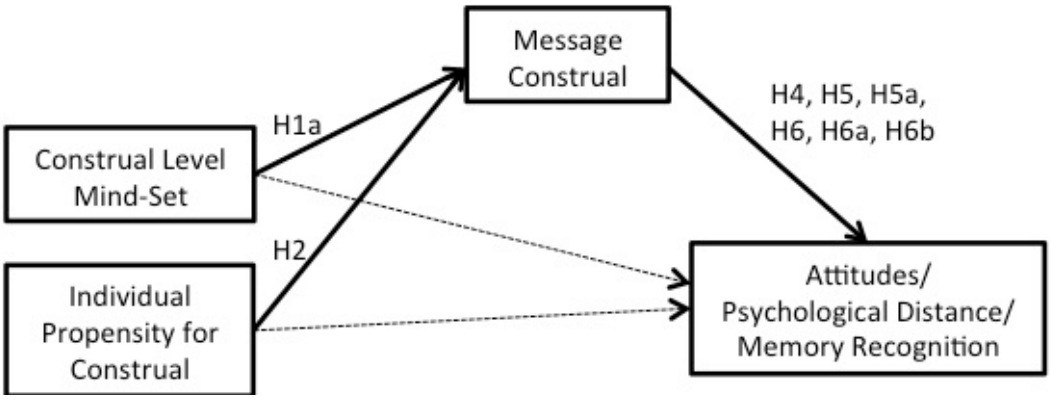

Figure 2
Model for Experiment 1 with hypotheses marked.

involving sensations were considered. The related research question is, how the user's experience during media exposure relates to abstract and concrete construal and to the attitudes media users report (RQ2).

These hypotheses and research questions were investigated using an experimental design with self-report measures that were administered using paper and pencil. The study used and audiovisual target message consisting of a short documentary about post-mortem organ donation. The study had two ostensibly unrelated parts. The first part included a pretest questionnaire with the independent personality construct and the priming task, which was introduced as a test run for later research. This task was supposed to prime an abstract or concrete construal level mind-set. A control group without a treatment was added to the design together with a second control group that was not exposed to the target message. In an unrelated second part of the study, participants watched the documentary. Once during the movie and immediately afterwards they were asked to list the thoughts they had while watching.

Then they answered questions that assessed the outcomes attitudes, psychological distance, and memory recognition.

Conceptually this study concentrates on a direct mind-set manipulation and the individual difference factor as independent variables. The central hypothesis claims that the construal level mind-set during message processing affects the consequent attitudes and believes about the topic, through the different message construal, following the mind-set manipulation. Methodologically the study brings the initial criticism to bear that existing literature seldom measures construal level and most research literature is narrowed down to the abstraction of actions or objects. To counteract this critique, the message construal was operationalized using *open* thought listings. Because it is highly unlikely that participants could make a determination about the level of abstractness of their thoughts, the use of open thought listings is beneficial. Furthermore, open thought listings are not domain-focused. As a downside of these methods comes that the available options of coding open-answers in the Construal Level Theory framework are rather limited. In summary, semantic coding or linguistic coding schemes are possible. By far most often published is the coding scheme applying the linguistic category model (Semin & Fiedler, 1988; Coenen, Hedebouw, & Semin, 2006), which I have discussed previously in Section 3.3.1.

To make sense of the thoughts, two coding schemes are pitted against each other in this first study. Both coding schemes claim to assess the theorized hierarchy of abstractness in language. The linguistic category model, according to Semin (2012), allows to assess language as a tool for the "communication about social events and their actors" (p. 312). With five categories (descriptive action verbs, interpretative action verbs, state action verbs, state verbs, and adjectives), which are differentiated on four levels of abstractness, the model seems to give room to interpersonal language that is not strictly referring to actions, through the categories of state action verbs and state verbs. Previous research supported this assumption. Ledgerwood, Wakslak, et al. (2010) utilized the linguistic framework in political speeches and found that politicians used more abstract language, when they considered their audience to hold different political views. Political speeches would involve not only action-related speech, but also a fair amount of attitude expression and therefore suggested that the linguistics category model can actually categorize speech beyond social events.

However, little published research actually assesses attitudes in relation to construal levels. If they used thought listings, either the text production by participants

was forced to produce a specific text, for example, describing action or rephrasing actions (Beukeboom & de Jong, 2008) or open thought listings were assessed on a semantic level (Hong & Lee, 2010). This coding procedure was more correctly a dichotomous rating of the produced thoughts as abstract or concrete. Yet, it formally enabled the investigators to include more possible domains of abstractness, like whether the thought expresses an abstract desirability or more concretely the feasibility of an action; whether the thought is goal-oriented and therefore abstract or whether the thought is process-oriented and are thus concrete. Given the missing methodological standards for assessing abstract thinking in open thought listings as the general abstraction of actions, people, objects, and judgments alike, the study uses two established coding schemes to compare. As such, the study also aims to add to the methodological discourse on how to measure the construal level.

6.1 Method

6.1.1 Participants.

A convenience sample of students at a German university was recruited on campus and through social media as part of a method-training course. A total of 62 students came to the lab over the cause of four weeks. They could participate in an incentive lottery draw of ten book vouchers and a chocolate bar as direct reward. Five questionnaires were excluded, because they had large missing sections or a systematic response bias. Fifty-seven participants did participate (female 74.5 %) were between the ages of 18 and 26 (M = 21.24, SD = 2.16). One person did not report his or her age and one participant did not report sex. The sex of the participants was distributed equally across the three experimental groups, χ^2 = 7.72, p = .052, but because the cell differences only marginally failed to reach the significance level, sex was considered as covariate in all computations.

6.1.2 Procedure and design.

The hypotheses were tested in a randomized experimental design (Abstract vs. Concrete Construal Level Mind-Set) with two control groups. One control group received no treatment to manipulate the construal level mind-set before watching the target clip. A second control group did not watch the movie only answer the attitude and memory recognition section.

Participants were tested in groups of six in a lab with 15-inch laptops and headsets. They were randomly assigned groups and seats. After reading and agreeing to

the consent form, participants were informed about two experimental parts. They filled out the measure behavior identification form (Vallacher & Wegner, 1989), assessing their individual action identification level. The experimental groups then worked on a procedural priming task to get into the routine of an abstract or concrete construal level mind-set before watching a documentary about organ donation. The control group was directed to watch the movie immediately after the pretest questionnaire. The movie was set on full screen for all participants before entering. Volume was adjusted to medium. The instructions told them how to start the video and adjust the volume. After approx. half of the movie (7.5 minutes), a green screen appeared for the participants with instructions to pause the movie and fill out the first thought-listing task. Instructions for the task asked to list five thoughts that they remember having during the movie. Participants were asked to list only full sentences. Afterwards they were directed to continue the movie. After the movie was finished (approx. 15 minutes) they were instructed for a second time to list their thoughts during the movie.

The second part of the study was introduced after the second thought listing. Participants were directed to a post-exposure questionnaire booklet with items on their attitude, memory recognition, perceived psychological distance, and social demographics.

The second baseline control group did not watch the movie and only filled out the post-exposure questionnaire parts not pertaining to the movie. This included the attitude questionnaire, memory recognition test, psychological distance items, and social demographics to control for the influence of the movie on the dependent attitude variables.

After participants finished their questionnaires they were thanked, given the option to participate in the draw of the book vouchers, and offered a chocolate bar. They were released with a short debriefing letter.

6.1.3 Material: Target message.

An organ donation documentary from German public broadcasting station was used, which was first screened in 2012 (Rosenkranz, 2012). The movie is narrated by an off-voice. The edited version included three story lines to present both pro and con arguments for organ donation: A boy waiting for an organ transplant and his parents, who were highly favorable towards organ donation; a medical doctor at a transplant center, who is clearly describing positive and negative effects of organ donation; and a

mother, who lost her son at the age of 17 and agreed to donate his organs, but now suffers from her decision.

6.1.4 Independent variables.

Construal level mind-set. The experimental manipulation was set out to prime participant's situational construal level mind-set. Each participant filled out a modified version of Freitas, Gollwitzer, and Trope's (2004) how-and-why-task set. In this task, participants are presented with an action (e.g., "climbing a tree") and are asked either how or why they would perform the action. For every generated answer they are asked why or how again. This was repeated four times. Asking *how* should encourage people to describe details of the behavior they performed, corresponding to a low construal level, while asking *why* should lead to more abstract reflections on the overall goal of a behavior, corresponding to a high construal level (Freitas et al., 2004). To allow sufficient time for the procedural mind-set manipulation to work, the participants did the task for three separate actions.

Action identification. As second independent variable participant's dispositional tendency to identify actions in abstract or concrete terms was tested using a total of 11 items from the Behavior Identification Form (BIF, Vallacher & Wegner, 1989). Every item consisted of a behavior description, such as "driving a car". Participants were then given two possible descriptions of this behavior, one of which was goal-oriented and corresponding to high-level action identification (e.g., "getting around") and one was action-oriented, focusing on the means to reach a goal (concrete action identification, e.g., "putting the key into the ignition"). Scale consistency was acceptable in the sample (M = 5.93, SD = 2.58, n = 44, Cronbach's α = .72). Abstract alternatives were scored 1 and concrete alternatives with 0. Participant's individual action identification tendency was defined as number of abstract action alternatives chosen on the BIF and ranged from 0 to 11 (Vallacher & Wegner, 1989).

6.1.5 Dependent variables.

Message construal – linguistic category model. To approximate the construal level mind-set during message processing, the level of abstractness (vs. concreteness) in the participant's mental representation after exposure was measured using a thought-listing task. Participants were asked to list five thoughts that came to their mind in the middle of exposure and again five thoughts immediately after watching. These open answers were coded using the linguistic category model (LCM) coding manual (Coenen

et al., 2006). It allows categorizing the thoughts based on the groups identified by Semin and Fiedler (1988). Coding was restricted to the main categories of verbs and adjectives including auxiliaries, linking verbs, and subordinate clauses as described in the manual. A blind coder was trained based on pretest's thought listings. After three tests, in which the author and coder met to discuss and finalize the application of the manual in German, inter-coder reliability between the author and coder was computed based on 10% of the total data set (Coenen et al., 2006). The reliability was satisfactory (Cohen's $\kappa = .73$). For the first (t1) and second thought-listing task (t2) a single linguistic category score was calculated, as well as a total score from both thought-listing tasks. Scores range from 1 (*detailed*) to 4 (*very abstract*). Two participants were identified as outliers ($z > 3.29$) and eliminated from the analyses.

A dependent *t*-test of the linguistic category score tested for a systematic difference at the two time points of the thought-listing task. The linguistic category score differed between t1 and t2 only in the abstract experimental group, $M_{diff} = 0.36$; $t(13) = 2.87$, $p < .05$, and thus suggested an additional separate analysis of t1 and t2. I will call this linguistic measurement of message construal the LCM score in the analyses.

Message construal – semantic categorization. To offset the linguistic approach to abstract and concrete construal, the thought listings were also scrutinized according to their semantic value. Based on a approach suggested by Hong and Lee (2010), a graduate student assistant trained by the principle investigator and blind to the experimental conditions rated the participants' thoughts as long as they related to the target movie or the target issue organ donation. Thoughts were scored as 1 (abstract) if they were made in reference to the participant's general impression and evaluation of the movie or organ donation ("Why do people decide against organ donation?", "I liked that the movie showed various perspectives on organ donation"). The thoughts were scored as 0 (concrete) if they made any reference to specifics or details of the movie or organ donation ("I feel sorry for the boy in the beginning [of the movie]","I try to put myself in their shoes").[13] The scores were summed up to an abstract thought index ranging from 0 (concrete) to 10 (abstract). The mean across groups was $M = 5.42$ ($SD = 2.53$). I will call this semantic measurement of message construal abstraction score in the analyses, in contrast to the LCM score.

[13] Translations of German thoughts by the author.

Memory recognition items. A memory recognition task based on the documentary was designed for this study and included only memory recognition items that focused on primary and abstract information about organ donation rather than concrete issues depicted by the movie. Eight health statements were provided in a dichotomous forced choice task. Participants were asked to rate them as factually correct or incorrect. The chosen statements all occurred in the 15-minute-long edited versions of the documentary. Examples were, "After an organ transplant the patient will need drugs" (right) or "Brain death means the patients is able to breath independently" (wrong). Right answers were coded with 1 and wrong answers were coded with 0. For hypothesis testing the sum of right answers was calculated. The mean across all groups was $M = 6.83$ ($SD = 1.11$).

Attitudes towards organ donation. Ten items from Gassmann, Vorderer, and Wirth (2003) were adopted and translated to assess attitudes towards organ donation. The items belonged to the three sub-dimensions: communicative (4 items, F2 in Table 2). Participants rated the items from 1 (*does not apply at all*) to 6 (*applies fully*). A confirmatory factor analysis was computed to validate the sub-dimensions of the attitude measure, but the model fit was very poor according to Byrne (2010). Modifications yielded no admissible solution with the small sample at hand, Figure 4 displays the tested model. This was followed by an exploratory factor analysis to assess possible changes in the factor solution. Gassmann et al. (2003) obtained the original factor solution using a Varimax rotation, which might be problematic (Kline, 1994), as the attitude sub-sets are likely to be moderately correlated. Despite the small sample ($N = 57$), the Kaiser-Meyer-Olkin measure deemed the sample adequate for a factor analysis ($KMO = .75$) and Bartlett's test of sphericity showed that the correlations among the items were sufficiently large, $\chi^2(45) = 147.80$, $p < .05$. Three factors emerged based on the Kaiser-criterion (Eigenvalue > 1, Oblimin rotation). The scree plot unambiguously supported the decision for three factors (cp. Figure 3). The factor solution explains 67.22 % of the variance. Table 2 shows the rotated item solution and the properties of the subscales. The first factor, Behavioral Intentions, refers to the direct behavioral intent to act as organ donor and mirrors the original concrete behavioral intention subscale (Gassmann et al., 2003), but now includes the item, "I consider organ donation from people diagnosed with brain death acceptable".

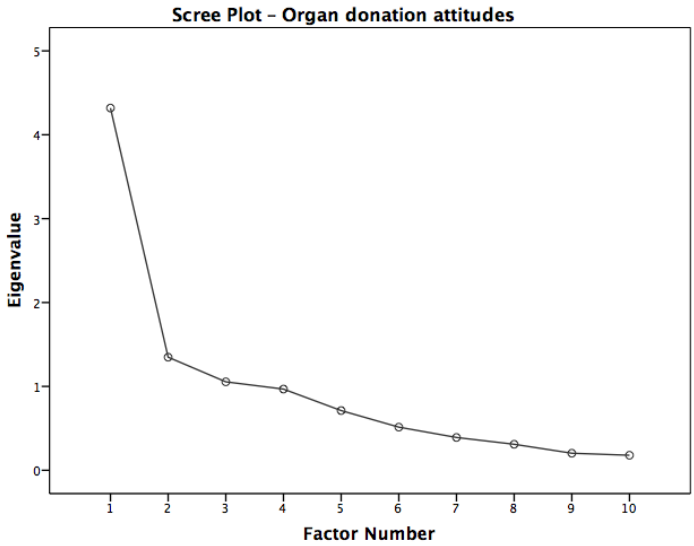

Figure 3
Scree plot of organ donation attitude factor analysis.

Communicative Action Intention, the second factor, represents the extent to which individuals are willing to communicate their own behavioral intention and to inform others. Here one item was dropped from the original measurement. Finally, the factor General Acceptance summarizes the attitudes towards the practice of organ donation. With minor corrections here the item solutions mimic the original scale. Possibly because of the selection of only three sub-dimensions these loading changes might have occurred.

Temporal distance. Another item was constructed to assess the temporal psychological distance the participants associate with the health message. The item again referred to a hypothetical person, Conrad, who is introduced as doctor of a patient, whom needs an organ-transplant. The patient is in fifth place on the transplant list. Participants are asked: "How long do you estimate will the patient have to wait for a transplant?" The open field asked for an estimate in days. Mean of the estimates was $M = 247.76$ ($SD = 32.54$).

Table 2
Exploratory Factor Analysis of the Attitudes Towards Organ Donation with Oblimin Rotation

	Rotated Factor Loadings		
Item	Behavioral Intention	Com. Action Intention	General Acceptance
O10re - I refuse becoming an organ donor in case of my brain death.*	**.79**		
O9 - I would accept if my organs are removed from me in case I suffer brain death, even if I haven't got a signed organ donor card.	**.71**		
O1 - I consider organ donation from people diagnosed with brain death acceptable.	**.54**		
O5 - I plan to fill out an organ donor card soon.		**.82**	
O6 - I will obtain more information on the issue.		**.72**	
O11 - In the future I will suggest to my family and friends to obtain an organ donor card.		**.49**	
O8 - In the future I will let my family know how I feel about organ donation so they know how to choose in case I would suffer brain death.	.22	.33	
O3re I feel removing organs from brain-dead patients is a desecration of dead bodies.		−.22	**.85**
O2re - In my opinion removing organs from people diagnosed as brain-dead degrades them to a spare parts warehouse.	.20		**.64**
O4re - In my opinion removing organs violates the dying's right to die with dignity.	.49		**.48**
Eigenvalues	4.32	1.35	1.10
% of variance	43.19	13.48	10.55
M	4.70	4.76	3.86
(SD)	(1.05)	(1.30)	(1.67)
Cronbach's α	.72	.74	.76

Note. N = 55. Items were translated into English by author. Item names with the suffix –re designate reverse scored items. German items can be reviewed in Appendix 10.1. Loadings below .2 are not printed. KMO = .75. *In the original measurement model this item was part of the General Acceptance subscale.

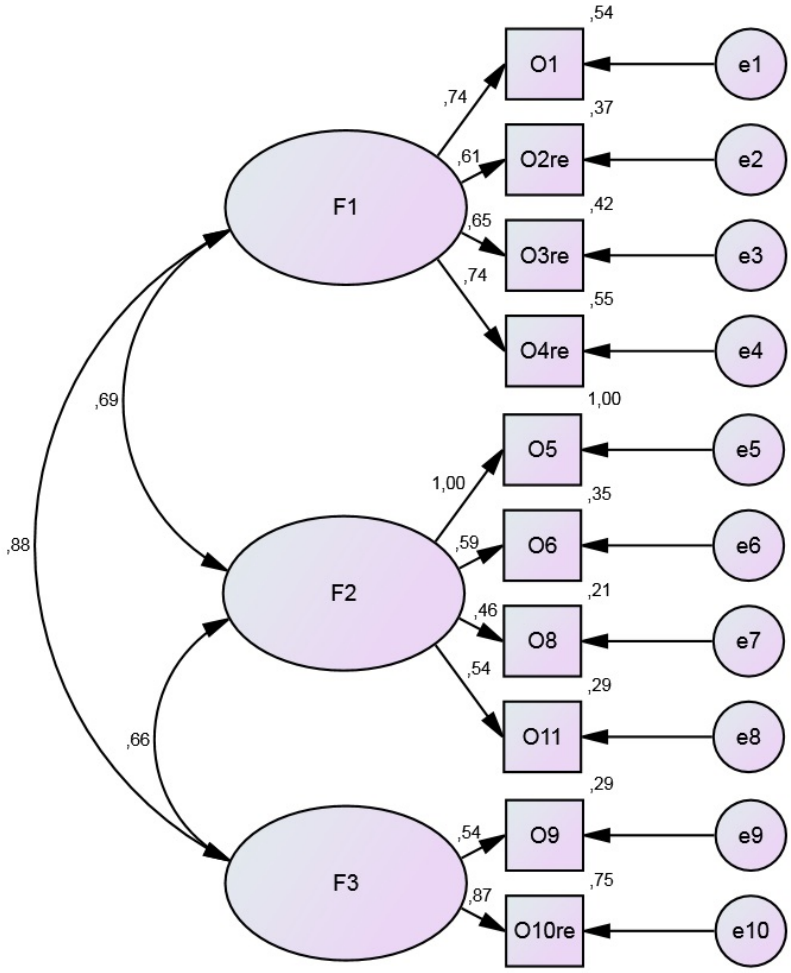

Figure 4
Confirmatory Factor Analysis of proposed measurement model by Gassmann et al. (2003). F1 = General Acceptance, F2 = Communicative Action Intention, F3 = Concrete Action Intention. Model fit: $\chi^2(66) = 123.78$, $p < .05$, *CMIN/df* = 1.88, comparative fit index (*CFI*) = .860, root mean square error approximation (*RMSEA*) = 0.090, 90% CI [0.065, 0.114], and standardized root mean square of residuals (*SRMR*) = .090. Scores in the figure represent standardized estimates.

Narrative involvement. To assess narrative involvement with the target message a total of nine items assessed the dimensions of, empathy ("The documentary affected me emotionally", Green & Brock, 2000), sympathy ("I worried for some of the characters", Busselle & Bilandzic, 2009), narrative realism ("The documentary was logic", Busselle & Bilandzic, 2009), ease of cognitive access ("I could easily follow the action an events", Appel et al., 2002), narrative involvement (3 items, e.g., "While viewing I wanted to know how the events would unfold", Green & Brock, 2000; Appel et al., 2002), and loss of time (2 items, e.g., "During the documentary, I lost track of

time.", Busselle & Bilandzic, 2009).[14] The answer options ranged from 1 (*does not apply at all*) to 6 (*applies fully*). A list of all items can be found in Table 3. The selection of items was done ad-hoc from existing scales for the constructs determined to comprise narrative involvement. The goal was to economically cover various parts of the construct. An exploratory factor analysis was computed to assess the dimensionality of the construct. Again, despite the small sample size, the Kaiser-Meyer-Olkin measure proved that the sample was adequate for a factor analysis (*KMO* = .65) and Bartlett's test of sphericity proved that the correlations among the items were sufficiently large, $\chi^2(36) = 138.57$, $p < .05$.

Two factors emerged based on the Kaiser-criterion (Eigenvalue > 1, Varimax rotation). The scree plot backs the factor extraction unambiguously (cp. Figure 5). The factor solution explains 57.61 % of the variance. The items clustering on Factor 1 summarized a predominantly emotional involvement ($M = 4.71$, $SD = 0.92$, $n = 45$), while items on Factor 2 captured various instances of cognitive involvement ($M = 4.17$, $SD = 0.94$, $n = 45$). The factor loadings and the reliability assessment revealed that the item for ease of cognitive access had low accuracy (item-total correlation) and was therefore dropped from the scale.

Table 3
Exploratory Factor Analysis of Narrative Involvement with Varimax Rotation

	Rotated Factor Loadings	
Item	Emotional Involvement	Cognitive Involvement
The documentary affected me emotionally.	**.83**	
The documentary was thought provoking.	**.76**	.29
I worried for some of the characters.	**.48**	
I could easily follow the action and events.*	−.42	.33
I was mentally involved in the story while viewing.[NI]	.54	**.73**
The documentary seemed to drag.[LT] (−)		**.67**
While viewing I wanted to know how the events would unfold.[NI]	.26	**.57**
During the documentary, I lost track of time.[LT]	.26	**.55**
The documentary was logic.		**.49**
Eigenvalues	3.60	1.62
% of variance	40.02	17.98
Cronbach's α	.69	.76

Note. NI = Narrative Involvement, LT = Loss of Time, *Item deleted due to loadings. Loadings below .2 are not printed. KMO = .65.

[14] The items were partially adapted for the purpose of this study.

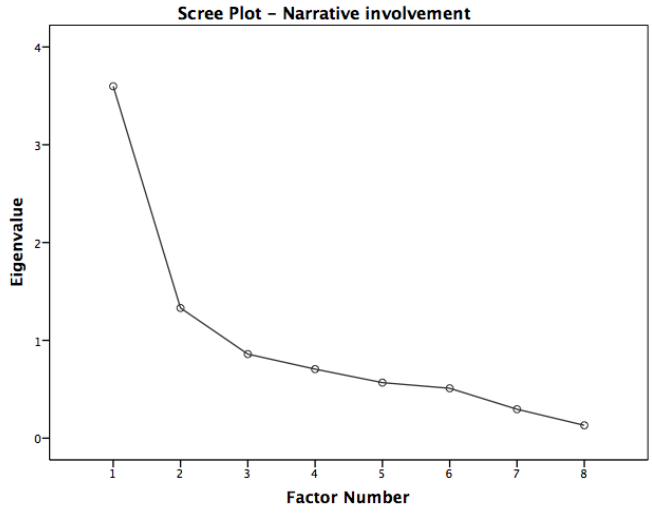

Figure 5
Scree plot of the narrative involvement factor analysis

Subjective abstractness. To measure the participant's subjective judgment of abstract and concrete presentation within the target message, a ten-item scale was derived based on the theorizing in the existing literature. Three items pertained to the perceived level of detail-richness in (a) the visual presentation, (b) the subject presentation, and (c) the character presentation. Answer options were 1 (*little detail*) to 6 (*very much detail*). Seven items pertained to matters of abstract (vs. concrete) presentation, for example, the amount of particulars (vs. primary information) in the presentation (Trope & Liberman, 2000) or the level of inclusiveness the documentary provided (Rosch, 1975; P. K. Smith & Trope, 2006). Items read, "In the documentary many interesting details were mentioned" or "The documentary represented the lives of everyone waiting for an organ transplant" (cp. all items in Table 4). As this measurement was an ad-hoc instrument an exploratory factor analysis was computed to explore its dimensionality. Again, the Kaiser-Meyer-Olkin measure deemed the small sample adequate for a factor analysis (*KMO* = .62) and Bartlett's test of sphericity established that the correlations among the items were sufficiently large, $\chi^2(45) = 129.20$, $p < .05$. Three factors emerged based on the Kaiser-criterion (Eigenvalue > 1, Varimax rotation).[15] The scree plot was ambiguous; it showed a steady decline of Eigenvalues with no particular inflexion (cp. Figure 6). The suggested factor solution explains 62.53 % of the variance. Table 4 displays the factor solution.

[15] An oblimin rotation yielded no pattern matrix after 25 iterations.

Table 4
Exploratory Analysis of Subjective Abstractness with Varimax rotation

	Rotated Factor Loadings		
Item	Factor 1	Factor 2	Factor 3
The documentary represented the lives of everyone waiting for an organ transplant.	−.62	.34	
The documentary gave a rough overview of the topic.	.59	.56	
The presentation with regard to content was abstract/concrete.	.58		.49
The presentation of the characters was abstract/concrete.	.55		
The visual presentation was abstract/concrete.	.54		
The documentary dealt with the issue very superficially.	.26	.65	
The documentary described the topic very abstractly.		.62	
In the documentary many concrete examples were mentioned.	.35	.58	.22
The documentary dealt with the topic very concretely.			.62
In the documentary many interesting details were mentioned.	.30	.21	.48
Eigenvalues	3.45	1.71	1.10
% of variance	34.47	17.15	10.90

Note. Items translated into English by author. Table shows a Varimax rotation. Loadings below .2 are not printed. *KMO* = .62.

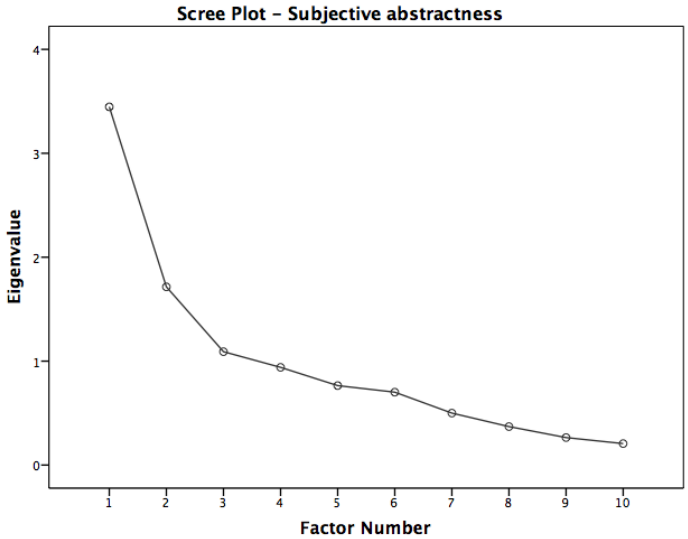

Figure 6
Scree plot of subjective abstractness factor analysis

A clear interpretation of factor loadings is not possible due to a substantial number of double loadings, particularly because most of the loadings are only moderately large to begin with.An overall mean index of all ten items has a Cronbach's α of .68. The item "The documentary represented the lives of everyone waiting for an organ transplant" was removed due to its lack of accuracy (cp. Table 4). The nine-item solution had a satisfactory Cronbach's α of .78 (M = 2.73, SD = 0.67, n = 45) and is used in the analysis.

Social demographics. Age and sex were assessed as social demographic variables.

6.2 Results

6.2.1 Preliminary analyses.

Randomization check. To check if the randomization had worked across the experimental groups, a one-way independent ANOVA tested whether the means of the individual difference factor *action identification* measured by the BIF (Behavior Identification Form, Vallacher & Wegner, 1989) differed across experimental groups. Within the small sample the BIF scores were normally distributed (z_{skewness} = 0.93, z_{kurtosis} = 1.49) and homogeneity of variances could be assumed, $F(2,42) = 0.27$, $p > .05$. There were no group differences of individual preference for abstract or concrete behavior identification, $F(2,42) = 0.24$, $p > .05$, suggesting that the randomization had worked. The groups were further indistinguishable in terms of age, $F(3,50) = 0.65$; $p > .05$ and sex, $\chi^2(3) = 7.72$, $p > .05$.[16] Furthermore, the participants who already had an organ donor card were of interest within the study. They were also randomly distributed across the experimental and control groups, $\chi^2(3) = .78$, $p > .05$ (cp. Table 5 and Table 6).

Manipulation check. To test the effectiveness of the construal level mind-set manipulation, a one-way ANOVA with a contrast test for a linear trend was computed. It was expected that the concrete construal level mind-set manipulation led to less abstract thoughts about the message (message construal) than the no-manipulation control group showed. Similarly, the abstract construal level mind-set condition was expected to display more abstract thoughts about the message than the control or the concrete mind-set condition.

[16] Age: z_{skewness} = 1.97, z_{kurtosis} = –0.85, homogeneity of variances $F(3,50) = 1.34$, $p > .05$.

Table 5
Means and Confidence Intervals of BIF and Age Across Experimental Groups

Experimental Groups	BIF		Age	
	M(SD)	*95% CI [LL,UL]*	*M(SD)*	*95% CI [LL,UL]*
control	7.80 (2.65)	[6.44, 9.27]	20.57 (1.91)	[19.47, 21.67]
concrete	7.81 (2.81)	[6.32, 9.31]	21.31 (2.02)	[20.23, 22.39]
abstract	7.21 (2.42)	[5.82, 8.61]	21.57 (2.17)	[20.32, 22.83]
control 2	-		21.60 (2.72)	[19.66, 23.54]

Table 6
Distribution of Sex and Organ Donor Cards Across Experimental Groups

Experimental Groups	Sex		Organ Donor Card		Participants Total
	female	male	yes	no	*n*
control	11	4	4	11	15
concrete	15	1	5	11	16
abstract	7	7	5	9	14
control 2	8	2	2	8	10
total	41	14	16	39	55

The manipulation effect overall was non-significant by traditional standards, $F(2,38) = 2.64$, $p = .09$, $\omega^2 = .06$ (cp. Figure 7). No significant linear trend emerged, $F(2,38) = 2.02$, $p > .05$, $\omega^2 = .03$. To further evaluate these results planned non-orthogonal contrasts were conducted and significant results were further probed with a Tukey adjustment for multiple comparisons.[17]

As predicted the planned contrasts indicated that participants in the abstract construal condition showed a higher mean message construal (LCM score) ($M = 3.29$, $SD = 0.25$) than the control condition ($M = 3.09$, $SD = 0.22$), $t(38) = 2.25$, $p < .05$, $r = 0.34$. After probing the mean difference, 0.20, ($SE = 0.09$, 95% CI [−0.02, 0.42]), with a Tukey correction it only approached significance ($p = .075$). This lends some support to the assumption that the abstract construal level mind-set manipulation had worked. Contrary to the expectations, the control group had the lowest message construal of all three groups. The mean difference between the abstract and the concrete

[17] Non-orthogonal contrasts are prone to type-I errors, the adjustments usually include a more conservative α-level. At the same time these tests have less power to detect effects. Gonzalez (2009) suggests Tukey as correction for pairwise comparisons in the case that all pairwise comparisons are planned.

condition was not significant; neither was the difference between the concrete condition and the control condition (cp. Table 7).

Table 7
Means for Abstract Representation by Experimental Group for LCM and Hong&Lee Coding

	LCM Score	Abstraction Score (Hong&Lee)
Experimental Groups	*M (SD)*	*M (SD)*
control	3.09[ab] (0.22)	5.60[de] (2.64)
n	15	15
concrete	3.15[ac] (0.24)	3.86[df] (1.96)
n	12	14
abstract	3.29[bc] (0.25)	6.79[ef] (2.15)
n	15	14

Note. Higher scores indicate more abstract message representation. LCM scores ranged from 1 (concrete) to 4 (abstract), the abstraction score according to Hong & Lee ranged from 1 (*concrete*) to 10 (*abstract*).
[a] Planned contrast control vs. concrete construal level group was not significant, $t(38) = 0.65$, $p > .05$, $r = .10$.
[b] Planned contrast control vs. abstract construal level group was significant, $t(38) = 2.25$, $p < .05$, $r = .34$.
[c] Planned contrast concrete vs. abstract construal level group was not significant, $t(38) = 1.48$, $p > .05$, $r = .23$.
[d] Planned contrast control vs. concrete construal level group was significant, $t(40) = -2.06$, $p < .05$, $r = .31$.
[e] Planned contrast control vs. abstract construal level group was significant, $t(40) = 3.40$, $p < .05$. $r = .22$.
[f] Planned contrast concrete vs. abstract construal level group was not significant, $t(40) = 3.40$, $p < .05$, $r = .47$.

As this experiment included a second coding scheme to assess the participants' message construal in the thought listings, the abstraction score based on Hong and Lee (2010) was used in the same one-way ANOVA to compare the effects. This test showed that the effect of the manipulation on this measure of message construal was significant, $F(2,40) = 5.86$, $p < .05$, $\omega^2 = .18$ (cp. Figure 8). For this measurement of message construal a significant linear trend emerged, $F(2,40) = 11.56$, $p < .05$, $\omega^2 = .22$. Planned contrasts demonstrated that the concrete construal level mind-set manipulation led to smaller abstraction scores and therefore less abstract message construal compared to the control group, $t(40) = -2.06$, $p < .05$, $r = 0.31$ and compared to the abstract construal mind-set manipulation, $t(40) = -3.40$, $p < .05$, $r = 0.47$. These mean differences were probed with a Tukey correction for multiple comparisons. The mean difference between the control group and concrete construal level mind-set condition, −1.74 ($SE = 0.85$, 95% CI [−3.80, 0.32]) was no longer significant ($p > .05$).

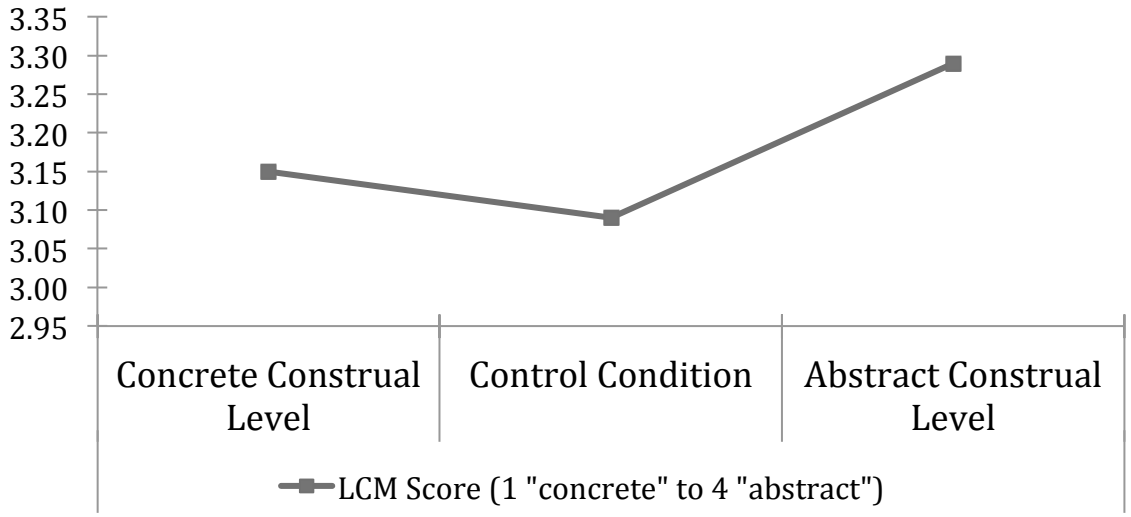

Figure 7
Mean plots of LCM Score across the experimental conditions.

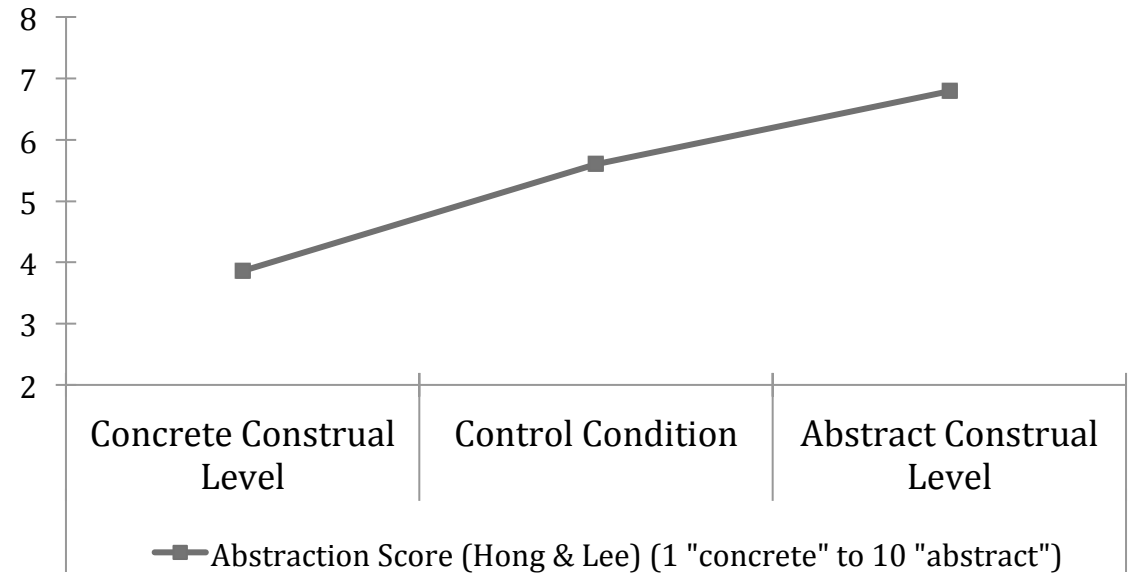

Figure 8
Mean plots of the abstraction score across the experimental conditions.

The mean difference between the concrete and abstract construal level mind-set condition, −2.93 (*SE* = 0.86, 95% CI [−5.02, −0.83]) withheld this probe. The abstract construal level mind-set manipulation did not differ significantly from the control condition. The initial results showed that, depending on which outcome measure was used, the manipulation worked only partially and this has to be considered interpreting the hypotheses tests.

Descriptive analyses. Before checking the hypotheses, zero-order correlations among the mediators, the dependent variables, and some central covariates were analyzed. First it should be noticed that the two applied measures of abstract or concrete message construal, the LCM and the abstraction score based on Hong and Lee (2010), showed no correlation (cp. Table 8).

The LCM score did have a significant moderately negative correlation with the participants' dispositional action identification tendency (BIF, $r = -.39$). According to this, participants with a more concrete action identification propensity had on average a more abstract message construal. Probing this relationship for both measuring time points separately, only the LCM score at t2 had this negative correlation ($r = -.29$) with the BIF. The LCM measured at the two time points seemed to differ in other instances as well. The LCM score at t1 correlated negatively with two attitude dimensions, while t2 did not demonstrate any significant relationship with the attitude sub-dimensions. This means, an abstract message construal at t1 was associated with less general acceptance of post-mortem organ donation and less intentions to get active in terms of communicating about organ donation. What was more, the LCM score at t1 was negatively related to both social distance items, while the compound score and the single t2 score were not related to the social distance items. An association with the attitude and judgment outcomes thus is mostly established at t1. The reversed picture was true for the relationship with the narrative involvement. Here the second thought-listing tasks' LCM score was moderately negative related to both Cognitive ($r = -.34$) and Emotional Involvement ($r = -.43$), whereas the score from the first thought listing was not. No associations were found between the Hong & Lee abstraction score and any of the outcome measures. It is therefore not of any use in analyses that include the outcome constructs. In the hypotheses testing the mediation through message construal only the LCM score will be assessed.

Table 8
Zero-Order Correlations Among Variables in Study 1

	M	*SD*	*Min*	*Max*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. BIF	7.62	2.60	2.00	12.00	–																
2. Abstraction Score t1 (Hong)	2.72	1.53	0.00	5.00	.14	–															
3. Abstraction Score t2 (Hong)	2.73	1.39	0.00	5.00	−.03	.49 **	–														
4. Abstraction Score total (Hong)	5.42	2.53	0.00	10.00	−.03	.88 **	.85 **	–													
5. LCM Score total	3.18	0.25	2.77	3.88	−.39 *	.12	.07	.11	–												
6. LCM Score t1	3.22	0.39	2.43	4.00	−.17	.21	.20	.24	.81 **	–											
7. LCM Score t2	3.16	0.32	2.62	4.00	−.29 †	−.07	−.07	−.12	.62 **	.04	–										
8. General Acceptance	4.70	1.05	1.67	6.00	.29 †	.07	−.08	−.02	−.30 †	−.25	.07	–									
9. Behavioral Intentions	4.76	1.14	1.00	6.00	.17	.25	−.04	.12	−.17	−.01	−.20	.52 **	–								
10. Communicative Action Intentions	3.86	1.06	1.00	5.67	.17	−.11	−.15	−.17	−.28 †	−.20	−.07	.38 **	.27 *	–							
11. Social Distance 1	3.58	1.67	1.00	7.00	.04	−.12	−.05	−.09	−.15	−.19	−.05	−.31 *	−.22	−.55 **	–						
12. Social Distance 2	4.73	1.66	1.00	7.00	−.01	−.18	−.12	−.17	−.05	−.08	−.01	.01	−.10	.17	.13	–					
13. Temporal Distance	247.76	32.54	3.00	1000.00	.10	.13	.24	.23	−.18	−.14	−.16	.02 ⁻	−.14	−.01	−.01	−.16	–				
14. Memory Recognition	6.83	1.11	3.00	8.00	.41 *	.08	.07	.08	.12	.21	.01	−.02	.14	.01	−.03	−.12	.12	–			
15. Narrative Involvement - Emotional	4.71	0.92	2.33	6.00	−.12	−.22	−.19	−.24	−.20	.02	−.34 *	.12	.20	.47 **	−.31 *	−.01	−.03	.03	–		
16. Narrative Involvement - Cognitive	4.17	0.94	2.00	6.00	.12	.09	−.15	−.03	−.32 *	−.04	−.43 **	.18	.26 †	.41 **	−.17	−.15	−.04	.10	.47 **	–	
17. Subjective Abstraction Rating	2.73	0.67	1.00	4.00	−.17	−.13	.14	.01	.33 *	.15	.28 †	−.33 *	−.37 *	−.37 *	.16	.03	.09	.08	−.37 *	−.71 **	–
18. Age	21.24	2.15	18.00	26.00	.01	−.08	−.10	−.11	.06	−.16	.28 †	.03	−.13	−.19	.16	.04	.12	.15	−.35 *	−.06	.23

Note. † $p < .10$, * $p < .05$, ** $p < .01$.

Memory recognition also remained unrelated to any other outcome. Inconsistently, only one of the two social distance items was related negatively with the attitude subscales Communicative Behavioral Intention ($r = -.55$) and Acceptance ($r = -.31$). The temporal distance item did not relate to any other outcome. Lastly, the age of the participants had some small to medium correlations with the t2 LCM score, the Communicative Behavioral Intention subscale of the attitude measure, and with emotional narrative involvement. Therefore it was considered as covariate in the analyses including those constructs.

6.2.2 Situational construal level and individual disposition as factors.

Main analyses. In Hypothesis 1a, I predicted an experimental effect of the construal level mind-set manipulation on the abstract or concrete mental representation of the message by the participants. The control group should demonstrate an average message construal, which should be more abstract than the concrete manipulation group's construal but less abstract than the message construal of the abstract mind-set condition. Similarly, H2 predicted a positive effect of the abstract or concrete action identification tendency on the abstract or concrete mental construal of the health message. The tests of Hypotheses 1a and 2 thus largely resembled the manipulation check, but controlled the covariance of the individual difference factor *action identification*. The randomization check already demonstrated that the individual action identification was independent from the experimental groups and thus assured the appropriateness of conducting an ANCOVA, using the message construal measured in the thought listings as outcome, the experimental groups as factor, and action identification as covariate. The same non-orthogonal contrasts as in the manipulation check were selected. Both manipulation groups were compared individually with the non-manipulation control group and the concrete and abstract manipulation conditions were compared against one another. Effects were probed with a Šidák correction.[18]

LCM score. The data showed that the participants' individual action identification tendency was significantly related to the message construal measured according to the linguistic category model, $F(1,37) = 6.48$, $p < .05$, $\eta_p^2 = .15$. Moreover, the marginal effect of the covariate was negative, $b = -0.04$ ($SE = 0.01$), and therefore contrary the suggested direction of H2. The higher the participants' individual action

[18] The ANCOVA procedure only offers limited post-hoc corrections. According to Field (2013), the Šidák-correction is slightly less rigid than the Bonferroni-correction, thus imposing slightly less power loss on the test.

identification tendency was, the more concrete they represented the health information. Therefore H2 is not supported.

The main effect of the mind-set manipulations remained marginally non-significant after controlling for the effect of the individual action identification tendency ($F(2,37) = 2.57$, $p = .09$, $\eta_p^2 = .12$) and the linear trend was also not significantly different from zero ($p > .05$). Planned contrasts established that, while controlling for the influence of the covariate, getting the abstract mind-set manipulation ($M = 3.29$, $SE = 0.06$) increased the LCM score compared to the control group ($M = 3.11$, $SE = 0.06$, $t(37) = 2.15$, $p < .05$, $r = .33$). The effect did not withstand Šidák adjustment for multiple comparisons ($p > .05$). Furthermore, while controlling for the influence of the individual difference in action identification, participants in the abstract construal level mind-set manipulation condition still showed higher LCM scores ($M = 3.29$, $SE = 0.06$) compared to the participants in the low construal level manipulation group ($M = 3.14$, $SE = 0.07$), but the difference was marginally non-significant $t(37) = -1.67$, $p = .10$, $r = .27$. With the Šidák adjustment this comparison became non-significant ($p > .10$). H1a is thus only partially supported.

*Additional analyses − Hong and Lee abstraction score***.** Using the semantic abstraction score (Hong & Lee, 2010) as measurement for message construal in the same ANCOVA changed the results very little in comparison to the LCM score. H1a received partial confirmation again. The experimental groups significantly differed on this level of message construal ($F(2,39) = 5.71$, $p < .05$, $\eta_p^2 = .23$), while controlling for the influence of the covariate action identification. A linear trend estimate, 2.07 ($SE = 0.62$), was different from 0 (95% CI [0.82, 3.32]). The planned contrasts suggested that participants of the concrete construal level mind-set condition ($M = 3.85$, $SE = 0.62$) differed significantly in their message construal from those in the abstract mind-set condition ($M = 6.78$, $SE = 0.62$), when controlling for the influence of the covariate ($t(39) = -3.36$, $p < .05$, $r = .47$). Probing this effect with a Šidák-corrected comparison made no difference ($p < .05$).

With the covariate in the model, the concrete construal level condition led, as predicted, to lower abstraction scores compared to the control group ($M = 5.61$, $SE = 0.60$). This mean difference, -1.76 ($SE = 0.86$) was significant ($p < .05$), however, the Šidák correction made the effect disappear ($p > .05$). As projected, the abstraction scores in the abstract construal level mind-set condition ($M = 6.78$, $SE = 0.62$) were higher than the control conditions' ($M = 5.61$, $SE = 0.60$). The difference was non-

significant when controlling for the covariate action identification, $t(39) = -1.40$, $p > .05$, $r = .21$.

In this model the covariate, participants' individual action identification tendency, was not significantly related to the message construal, $F(1,39) = 0.19$, $p > .05$, $\eta_p^2 = .00$. Based on these analyses, both the abstraction score measure based on Hong and Lee (2010) as well as the LCM score allowed only partial confirmation of H1. The predicted influence of the individual difference in action identification tendency on the abstraction of the health message was also not supported by the data (H2).

Summary. The LCM measurement of message construal had correlations with some outcome measures and covariates, whereas the Hong & Lee abstraction score as measure of message construal does not. A missing correlation between the measurements deemed the abstraction score hard to interpret. The more established measurement is the LCM score. As an immediate result only the LCM-based message construal will be considered in the hypotheses tests hereafter. In this case, especially the abstract construal level mind-set condition is of interest, as the manipulation check revealed that only the abstract manipulation had the predicted effect.

6.2.3 Memory recognition.[19]

For the memory recognition of the health issue, I predicted that participants in an abstract construal level mind-set during the exposure to a mediated health message will show better recognition of primary information than participants in a concrete construal level mind-set, because their message construal of the information is more abstract (H4). Again, the control group should display medium memory recognition of primary facts and have higher memory recognition compared to the concrete construal level mind-set group. This hypothesized mediation model was estimated using ordinary least squares path analysis with the PROCESS Macro for SPSS (Preacher & Hayes, 2004; Hayes, 2013; Hayes & Preacher, 2014). The construal level conditions were dummy coded using the control condition as reference condition. The two dummy variables and the individual action identification tendency were used as factors. The message construal (LCM score) was used as mediator in the model (cp. Figure 9). First of all, message construal (hereafter only LCM score based message construal) had a direct effect on the recognition of primary information about the health topic. Participants with more

[19] All 95% Confidence intervalls reported in the following analyses were bootstrapped from 10,000 samples, unless noted otherwise.

abstract message construal showed a better memory recognition, b = 1.40, SE = 0.68, 95% BCa CI [0.02, 2.63] than participants with a relatively more concrete construal of the message. There were no direct effects of the abstract (b = −0.01, SE = 0.34, 95% BCa CI [−0.73, 0.69]) and concrete construal level mind-set on the memory recognition (b = 0.15, SE = 0.37, 95% BCa CI [−0.48, 1.03]). The 95% BCa CI [−0.14, 0.56] for the indirect effect of the concrete mind-set condition (relative to the control group) on memory recognition through the abstract or concrete message construal (b = 0.18, SE = 0.18) included zero.

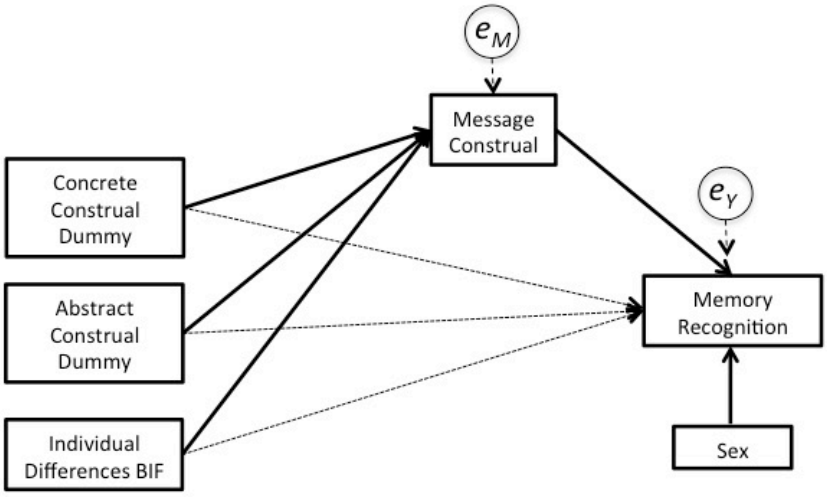

Figure 9
Statistical diagram for the hypothesis test of H4, e_M = measurement error of the mediator, e_Y = measurement error of the outcome variable.

Similarly, there was no indirect effect for the abstract construal level condition (relative to the control condition) on memory recognition through the message construal, because the 95% BCa CI included zero (b = 0.25, SE = 0.18, 95% BCa CI [−0.03, 0.68]). The action identification tendency did relate to the memory recognition score in the expected manner. The more abstract the action identification tendency, the better the recognition of primary information was (b = 0.19, SE = 0.06, 95% BCa CI [0.07, 0.30]). No indirect effect of the individual action identification tendency on memory recognition, through construal of the health message, was found. Thus, Hypothesis 4 is rejected. The very small coefficient (b = −0.05, SE = 0.03, 95% BCa CI [−0.11, 0.00]) for the effect of BIF on message construal further resembled the counterintuitive effect direction already produced in Section 6.2.2, in the test of H2. This supports the decision to reject H2 and the assumption that the individual difference in abstract or concrete action identification influences the applied message construal of the participants.

Additional analyses. The second control group came to use at this point to substantiate the assessment of memory recognition. It was assessed whether the memory recognition answers were too easy, and whether they were answered equally well by participants, who had not seen the documentary. The mean differences between the second control group and the other conditions were tested using an ANOVA. Table 9 shows the participants who had not watched the documentary had the lowest sum score of correct answers of all conditions. Planned contrasts compared the second control group against all others and showed that all mean differences were significant when compared to the non-manipulation control group ($t(43) = -2.85$, $p < .05$), the concrete manipulation ($t(43) = 3.89$, $p < .05$), and the abstract manipulation condition ($t(43) = -3.38$, $p < .05$). All contrasts remained significant after a Bonferroni correction for multiple comparisons ($p < .05$). This suggests that memory recognition was, in fact, due to watching the documentary and less likely common knowledge.

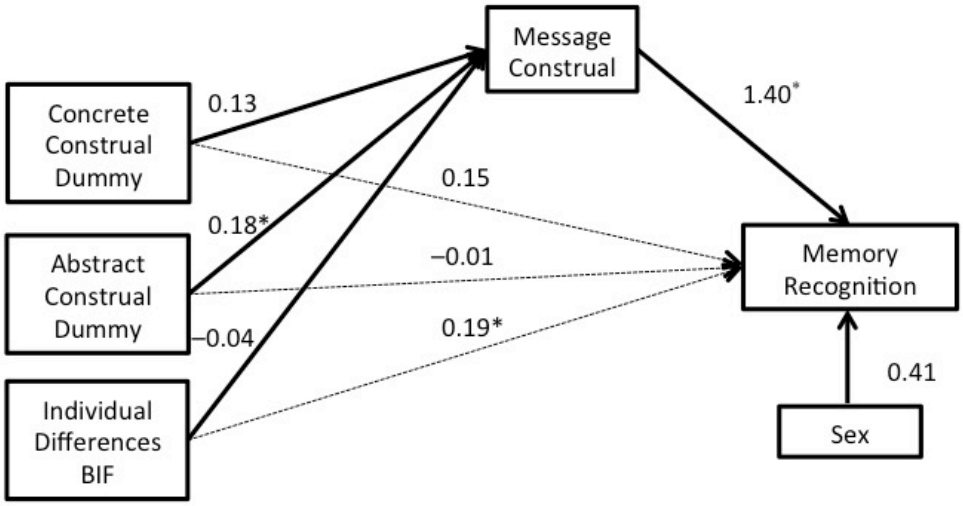

Figure 10
Ordinary least square path models for the influence of the construal level mind-set conditions and individual action identification tendency on memory recognition of primary facts through message construal measured with the linguistic category model, $n = 34$, $F(5,28) = 2.67$, $p < .05$, $R^2 = .32$. $^{\dagger}p < .10$, $*p < .05$.

6.2.4 Attitude measures.

In Hypotheses 5a and 5c I assumed that the abstract and concrete construal level mind-set manipulations and the individual action identification would affect the participants' attitudes towards the health topic in the message, because those two factors should influence the message construal (Vallacher & Wegner, 1989; Freitas et al., 2004). Particularly, for the abstract manipulation condition their abstract message construal

Table 9
Means, Standard Deviations, and 95% CI for the Outcome Variables per Condition

	Conditions									
	control (n = 15)		concrete (n = 16)		abstract (n = 14)		control 2 (n = 10)			
Variable	*M(SD)*	*95% CI [LL,UL]*	*M(SD)*	*95% CI [LL,UL]*	*M(SD)*	*95% CI [LL,UL]*	*M(SD)*	*95% CI [LL,UL]*	*F*	
Memory Recognition	6.91 (1.22)	[6.09, 7.73]	7.31 (0.63)	[6.93, 7.69]	7.07 (0.73)	[6.65, 7.49]	5.67 (1.32)	[4.65, 6.68]	10.18	**
General Acceptance	5.03 (0.10)	[4.48, 5.59]	4.48 (0.91)	[4.00, 4.96]	4.36 (1.02)	[3.77, 4.94]	5.03 (1.27)	[4.42, 4.98]	0.00	
Behavioral Intention	5.24 (0.81)	[4.80, 5.69]	4.60 (1.08)	[4.03, 5.18]	4.83 (1.27)	[4.10, 5.57]	4.20 (1.31)	[3.27, 5.14]	4.18	*
Communicative Action Intention	3.86 (1.21)	[3.18, 4.53]	3.86 (1.12)	[3.28, 4.47]	3.67 (1.11)	[3.03, 4.31]	4.09 (0.74)	[3.56, 4.62]	0.16	
Social Distance 1	3.67 (1.63)	[2.76, 4.57]	4.13 (1.78)	[3.17, 4.09]	3.00 (1.88)	[1.91, 4.09]	3.40 (1.07)	[2.63, 4.17]	0.77	
Social Distance 2	4.60 (1.50)	[3.77, 5.43]	4.50 (1.93)	[3.47, 5.53]	4.79 (1.63)	[3.85, 5.72]	5.20 (1.62)	[4.04, 6.36]	0.97	
Temporal Distance	286.21 (281.05)	[123.94, 448.49]	198.13 (207.37)	[87.62, 308.62]	291.71 (255.43)	[144.23, 439.20]	211.80 (213.63)	[58.98, 364.62]	0.17	

Note. ** $p < .01$, * $p < .05$.

should lead to more positive attitudes in comparison to the control group, while concrete message construal should lead to less positive attitudes towards organ donation. To estimate this mediation model, ordinary least squares path analysis with the PROCESS Macro for SPSS (Preacher & Hayes, 2004; Hayes, 2013; Hayes & Preacher, 2014) was used. As in the hypothesized model in Figure 10, the construal level conditions were dummy coded, using the control condition as reference condition. The two dummy variables and the individual action identification tendency were used as factors. Message construal was used as mediator in the model. The organ donation attitude items loaded on three sub-dimensions in the initial factor analysis (cp. Table 2). The three sub-dimensions Behavioral Intentions, the Communicative Action Intent, and the General Acceptance (of organ donation practices) will be used as outcomes in the model (cp. Figure 11).

The results were particularly ambiguous, because the direct effect of message construal on the attitudes was contrary to the hypothesized direction. A more abstract message construal, when assessed using the LCM, led to less positive attitudes towards organ donation, whereas a more concrete message construal led to more positive attitudes (cp. Figure 11). Additionally, the direct effect of the individual difference in action identification had a negative effect on message construal, as was already indicated in the ANCOVA testing Hypothesis 2. As could be expected from the previous analyses, none of the indirect effects tested in the mediation model was entirely different from zero, they are reported with the respective confidence intervals in Table 10. In fact, the indirect effects of the mind-set conditions through message construal indicated a reversed effect than the one hypothesized for the abstract construal level mind-set condition. Table 10 displays how participants in the abstract construal level condition, relative to the control condition (Abstract Construal Mind-Set Dummy) report less positive attitudes for all three attitude sub-dimensions. The indirect effects of action identification on the attitude outcomes through message construal were in the hypothesized directions, however, their confidence intervals were also including zero and very small. The direct effects of the factors in the model on the attitude outcomes complement the picture thus far. As Figure 11 also shows, only the small effect of the individual difference in action identification, measured by the BIF, indicated the expected direction based on theoretical assumptions derived from literature. The two dummy variables also show no significant direct effects and the estimated effects are contrary to what was expected. Compared to the control group, both abstract and

concrete construal level mind-set manipulations led to less positive attitude outcomes on two attitude sub-dimensions. The hypotheses related to this question, H5a and H5c, have to be rejected based on the data at hand.

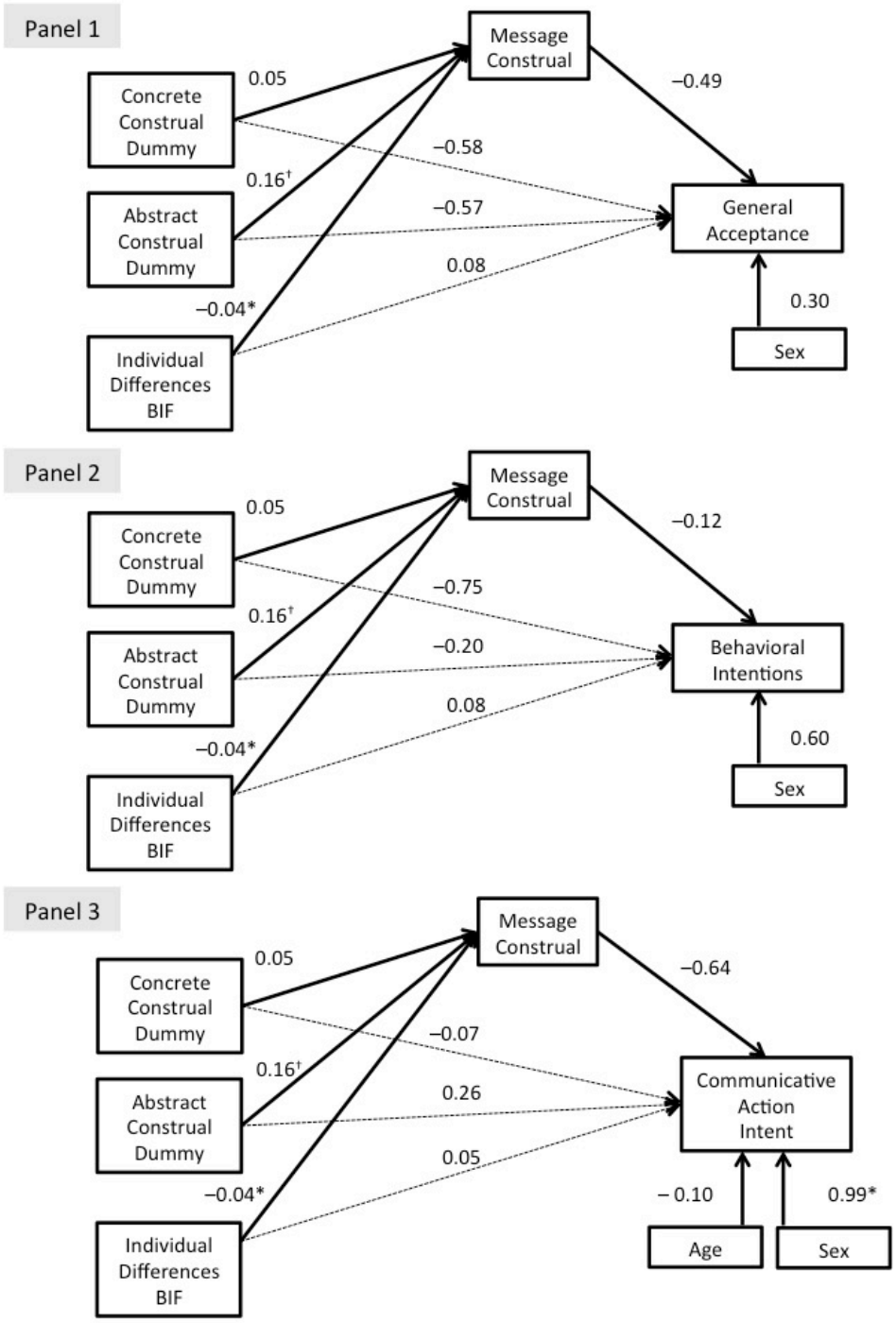

Figure 11
Ordinary least square path models for the influence of the construal level mind-set conditions and individual action identification tendency on attitude outcomes through message construal measured with the linguistic category model. Panel 1: $R^2 = .22$, $F(4,36) = 3.32$, $p > .05$, $n = 41$, Panel 2: $R^2 = .18$, $F(4,36) = 1.57$, $p > .05$, $n = 41$, Panel 3: $R^2 = .33$, $F(5,34) = 3.48$, $p < .05$, $n = 40$. † $p < .10$, $*p < .05$, $**p < .01$.

Table 10
Indirect Effect of the Independent Factors Construal Level Mind-Set Manipulation and Action Identification Tendency on the Attitude Outcomes Through Message Construal

	Consequent: Attitudes			
			95 % BCa CI	
Antecedent	*Coeff.*	*SE*	*LL*	*UL*
	General Acceptance			
Concrete Construal Mind-Set Dummy	−0.02	0.10	0.29	0.13
Abstract Construal Mind-Set Dummy	−0.10	0.18	−0.57	0.14
Action Identification	0.02	0.03	−0.04	0.09
	Behavioral Intention			
Concrete Construal Mind-Set Dummy	−0.01	0.07	−0.21	0.09
Abstract Construal Mind-Set Dummy	−0.05	0.13	−0.36	0.16
Action Identification	0.01	0.02	−0.04	0.06
	Communicative Action Intention			
Concrete Construal Mind-Set Dummy	−0.03	0.12	−0.35	0.14
Abstract Construal Mind-Set Dummy	−0.18	0.17	−0.59	0.04
Action Identification	0.04	0.03	−0.01	0.10

Note. Construal level mind-set conditions were dummy coded with the control group as reference group.

Additional analyses. A second control group was part of the experiment to assess a possible influence of the target movie. This second control group did not watch the target movie and did not receive a mind-set manipulation. Participants only answered to the questions on attitude and psychological distance. An ANOVA with planned contrasts tested the second control groups' mean attitudes against all other groups. Table 9 shows the mean differences. On the sub-dimensions General Acceptance and Communicative Action Intention there were no meaningful differences. For those dimensions planned contrasts showed that no condition did significantly differ from the second control group. For the sub-dimension General Acceptance all planned contrast comparing the second control group with the non-manipulation control group ($t(51) = 0.00$, $p > .05$), the concrete mind-set condition ($t(51) = -1.33$, $p > .05$), and the abstract mind-set condition ($t(51) = 1.58$, $p > .05$) remained non-significant. In case of the dimension Communicative Action Intention, the planned contrasts comparing the means of the second control group and the non-manipulation control group ($t(51) = 0.53$, $p > .05$), the concrete mind-set condition ($t(51) = -0.49$, $p > .05$), and the abstract mind-set condition ($t(51) = 0.93$, $p > .05$) remained also non-significant. For the dimension Behavior Intention, Table 9 shows that the control group, who did not watch the target message, reported the lowest level of behavioral intentions. Comparisons of the control group to the concrete mind-set condition ($t(51) = 0.90$, $p > .05$) and the abstract mind-

set condition ($t(51) = -1.38$, $p > .05$) displayed no significant mean differences, however, compared to the non-manipulation control group the mean differences were significant ($t(51) = -2.30$, $p < .05$). The test did not withstand the Tukey correction for multiple comparisons ($p > .05$).

6.2.5 Psychological distance.

The study used three single items to measure the psychological distance activated by the mind-set manipulation. Based on construal level theorizing (Liberman et al., 2002; Nussbaum et al., 2003; Fujita, Henderson, et al., 2006), I expected that people in the abstract construal level mind-set condition would show more psychological distance, by reporting less social proximity to the example person (H6a) or by estimating a longer temporal time span (H6b). Again, a mediation model using the ordinary least square method with the PROCESS macro was calculated including message construal as mediator and the three sub-dimension of organ donation attitude, extracted in Table 2, as outcomes. The hypothesized indirect effect from the construal level mind-set conditions to the psychological distance outcomes through message construal was not found for the first social distance item, when comparing the concrete mind-set condition against the control condition ($b = -0.08$, $SE = 0.16$, 95% BCa CI [−0.42, 0.26]) and the abstract condition against the control condition ($b = -0.20$, $SE = 0.25$, 95% BCa CI [−0.79, 0.19]). All confidence intervals included zero. Direct effects and indirect effects for the first social distance item were all small, the confidence intervals were not entirely above zero, and they were contrary to the hypothesizing (except the comparison of the concrete vs. control condition, cp. Figure 12). As for the direct effects, message construal related to social distance in a way that more abstract message construal, when measured with the LCM, led to more social proximity. The concrete mind-set condition displayed more social distance than the control group, while the abstract mind-set condition showed less social distance compared to the control group. Almost the same pattern of results could be witnessed for the second social distance item. No indirect effect of the manipulation on social distance through message construal could be found for the concrete (vs. control) comparison ($b = -0.06$, $SE = 0.18$, 95 % BCa CI [−0.57, 0.12]) and the abstract (vs. control) comparison, $b = -0.16$, $SE = 0.24$, 95% BCa CI [−0.72, 0.25]. Again, the confidence intervals for the indirect effects did not exclude zero and the coefficient for the abstract versus control group comparison was contrary to the predictions. The direction of the non-significant direct effects was as predicted, yet small (H6a, cp.

Figure 12). Finally, in the case of the temporal distance (measured in days), no results could be established either. The direct effect of message construal on the temporal distance estimate of the participants was, similar to the previous results, not in the expected direction and included zero in the 95% confidence intervals. In fact, participants with more abstract message construal estimated that the referenced person in the question would wait fewer days on the organ donor list, compared to participants with a more concrete construal level. No indirect effects were found for both dummy groups ($b_{concrete}$= −23.47, *SE* = 34.74, 95% BCa CI [−13.75, 23.52], $b_{abstract}$= −46.52, *SE* = 42.87, 95% BCa CI [−143.94, 23.26]). Again, the indirect effect for the abstract construal level condition through message construal was reversed. The direct effects of the dummy conditions were as hypothesized, showing that people in the concrete mind-set condition estimated the person in the question would wait fewer days on the organ donor list, compared to participants in the control group ($p > .05$). The participants in the abstract mind-set condition, on average, estimated more days than the control group ($p > .05$, cp. Figure 12). Yet, all these results were statistically not reliable.

Additional analyses. As before, an ANOVA with planned contrasts tested the second control group's means on the psychological distance items against the mean psychological distance of all other groups. This should establish whether the movie itself had made a difference for the outcome measures. Table 9 displays the mean differences. For the first social distance item the mean comparisons of the second control group and the non-manipulation control group ($t(51) = −0.39$, $p > .05$), the concrete mind-set condition ($t(51) = 1.08$, $p > .05$), and the abstract mind-set condition ($t(51) = 0.58$, $p > .05$) were all non-significant. In the case of the second social distance item the comparisons also remained non-significant, when testing the mean difference between the second control condition and the non-manipulation control group ($t(51) = 0.87$, $p > .05$), the concrete mind-set condition ($t(51) = −1.03$, $p > .05$), and the abstract mind-set condition ($t(51) = 0.59$, $p > .05$). The final multiple comparisons were done for the temporal distance item. Here, the mean differences between the second control group and the non-manipulation control group ($t(51) = −0.74$, $p > .05$), the concrete mind-set condition ($t(51) = −0.14$, $p > .05$), and the abstract condition ($t(51) = −0.80$, $p > .05$) were not significant as well.

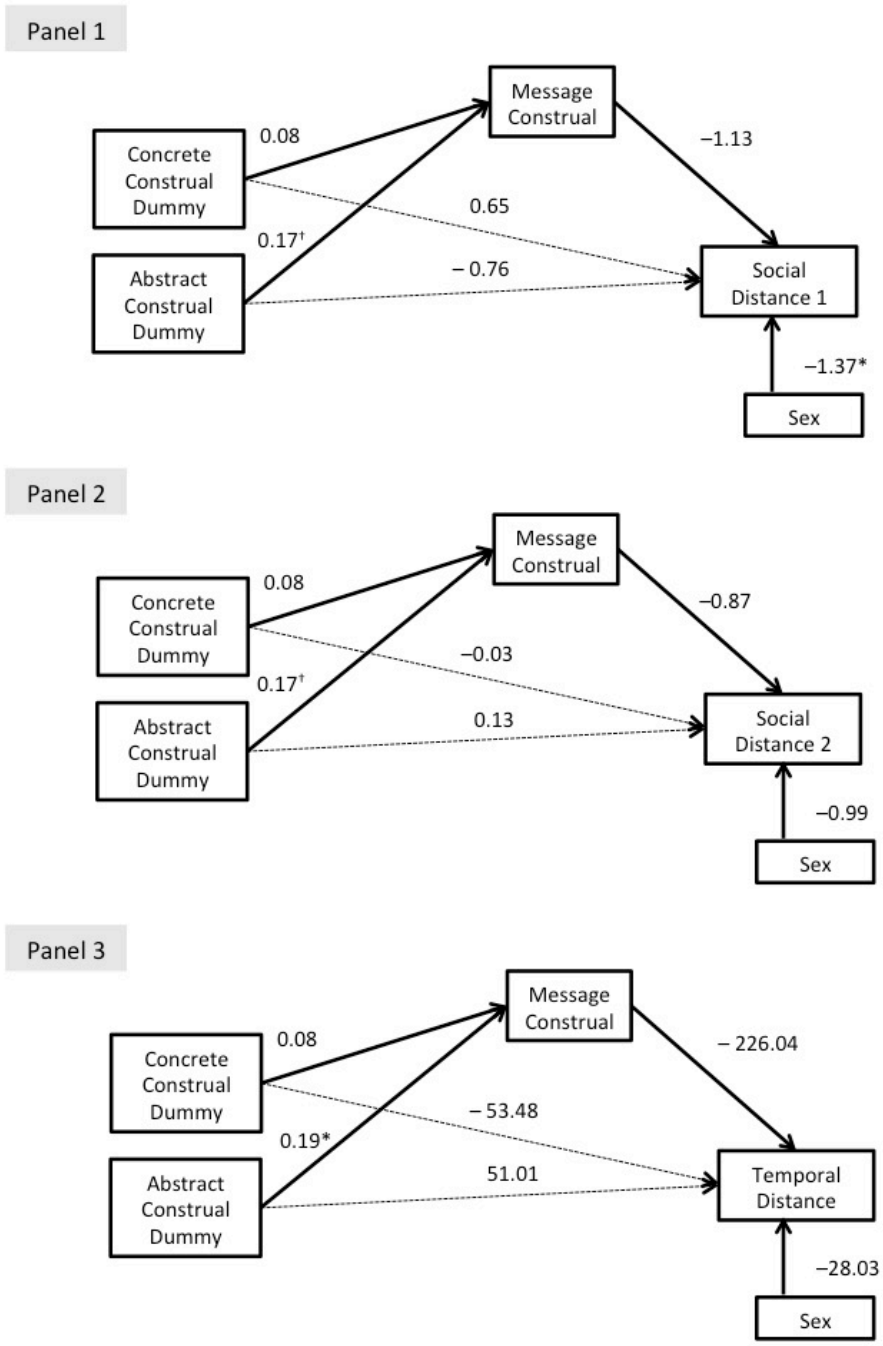

Figure 12
Ordinary least square path models for the influence of the construal level mind-set conditions and individual action identification tendency on psychological distance through message construal measured with the linguistic category model. Panel 1: $R^2 = .17$, $F(4,36) = 1.80$, $p > .05$, $n = 41$, Panel 2: $R^2 = .08$, $F(4,36) = 0.86$, $p > .05$, $n = 41$, Panel 3: $R^2 = .07$, $F(4,35) = 0.63$, $p > .05$, $n = 40$. $^{\dagger} p < .10$, $^{*}p < .05$.

6.2.6 Research question 1.

The first research question was concerned with the participants' subjective experience of the documentary as abstract or concrete and how this would relate to the post-exposure measurements of abstract or concrete message construal. To relate message construal with the subjective experience and to better understand the abstraction score according to Hong and Lee (2010), I considered both measurements of message construal in the following descriptive analysis. The participants' subjective evaluation of the abstractness displayed in the documentary was used as an independent factor in two simple linear regression models and in each one of the two assessments of the thought listings as dependent variable. The subjective abstractness accounted for 11% of the variance in the LCM score (R^2 = .11, $F(1,39) = 4.78$, $p < .05$). There was a significant small positive association between the subjective abstractness and the LCM score, β = .33 (b = 0.12), SE = .10, 95% CI [0.01,0.23], $p < .05$. In turn, the subjectively perceived abstractness did not explain any significant variance in the Hong & Lee abstraction score, R^2 = .00, $F(1,41) = 0.01$, $p > .05$. The related beta-values were very small and non-significant (β = .01, b = 0.04, SE = .58, 95% CI [−1.14,1.22], $p > .05$). Looking at the correlation table (cp. Table 8), the subjective abstractness rating by the participants showed a similar pattern of correlations with the attitude outcomes as the LCM score did. The more abstract participants rated the documentary, the less accepting they were of organ donation (r = −.33, $p < .05$), the fewer behavioral intentions (r = −.37, $p < .05$), and the fewer communicative action intentions they reported (r = −.37, $p < .05$). A portion of the message construal thus related to how abstract or concrete participants rated the documentary. Therefore, the similar relationship of the subjective abstractness ratings to the attitude outcomes substantiates the small counterintuitive relationships of message construal and attitude outcomes that emerged in the path models (cp. Figure 11).

6.2.7 Research question 2.

The second research question aimed to relate the narrative experience of the participants with the subjective and more objective assessment of abstraction. The correlational analysis displayed in Table 8 showed that both cognitive and emotional narrative involvement correlated rather strongly with each other (r = .45, $p < .05$). There was no correlation with the abstraction score (Hong & Lee, 2010). There was, however, a medium negative correlation between the LCM score and the cognitive narrative involvement (r = −.32, $p < .05$). For the second time point the correlation was even

more pronounced. The LCM score of the second thought-listing task correlated negatively with both cognitive ($r = -.43$, $p < .05$) and emotional narrative involvement ($r = -.34$, $p < .05$). In comparison, the first time point for the thought listings showed no associations with the narrative involvement at all.

Both forms of narrative involvement correlated also with the subjective abstractness of the participants. For emotional involvement the correlation was of medium strength and negative, ($r = -.37$, $p < .05$), but for cognitive involvement the correlation with subjective abstractness was very large ($r = -.71$, $p < .05$). Finally, emotional narrative involvement was significantly positive related to the attitude outcome Communicative Action Intention ($r = .47$, $p < .05$), but not significantly associated with any other attitude outcome. Cognitive narrative involvement was, in turn, also related to the communicative action intention of participants ($r = .41$, $p < .05$) and marginally significantly to behavioral intentions ($r = .26$, $p < .10$).

Table 11
Means for Cognitive and Emotional Narrative Involvement

	Cognitive	Emotional
Experimental Groups	*M (SD)*	*M (SD)*
control	4.03 (0.93)	4.53 (1.05)
n	15	15
concrete	4.41 (0.73)	5.06 (0.61)
n	16	16
abstract	3.99 (1.16)	4.49 (0.99)
n	14	14

To further this inquiry, I also assessed a possible experimental influence of the abstract and concrete mind-set manipulation on narrative involvement. The main effect remained insignificant for emotional narrative involvement, $F(1,42) = 0.02$, $p > .05$ and cognitive narrative involvement, $F(1,42) = 0.09$, $p > .05$. However, the mean differences between the experimental groups, although small, supported the notion of the correlational analysis. On both sub-dimensions the concrete construal level mind-set group showed the highest mean involvement. The latter two findings allow the question whether the negative influence of message construal on the three attitude outcomes could be explained through the narrative involvement. The negative association of message construal and narrative involvement, which in turn is positively related to attitudes, would allow the assumption that narrative involvement is the driving mechanism through which the attitudes are negatively associated with message

construal. I analyzed the direct and indirect effect of message construal on each of the three dimensions of organ donation attitudes through the mediators cognitive and emotional narrative involvement using ordinary least squares path analysis and the PROCESS Macro for SPSS (Preacher & Hayes, 2004; Hayes, 2013; Hayes & Preacher, 2014). Table 12 and Table 13 show the indirect effects.

Table 12
Indirect Effect of the Message Construal on the Attitude Outcomes Through Cognitive Narrative Involvement

	Consequent: Attitudes			
			95 % BCa CI	
Antecedent	*Coeff.*	*SE*	*LL*	*UL*
		General Acceptance		
Message Construal	−0.23	0.21	−0.65	0.18
		Behavioral Intention		
Message Construal	−0.40	0.33	−1.02	0.12
		Communicative Action Intention		
Message Construal	−0.41	0.30	−1.07	0.11

Note. Controlled for the influence of emotional narrative involvement. General Acceptance: R^2 = .14, $F(3,37)$ = 1.98, Behavioral Intention: R^2 = .15, $F(3,37)$ = 2.19, Communicative Action Intention: R^2 = .32, $F(3,37)$ = 6.98**; ** p < .01.

Table 13
Indirect Effect of the Message Construal on the Attitude Outcomes Through Emotional Narrative Involvement

	Consequent: Attitudes			
			95 % BCa CI	
Antecedent	*Coeff.*	*SE*	*LL*	*UL*
		General Acceptance		
Message Construal	0.01	0.12	−0.23	0.28
		Behavioral Intention		
Message Construal	0.03	0.19	−0.28	0.55
		Communicative Action Intention		
Message Construal	−0.03	0.15	−0.34	0.30

Note. Controlled for the influence of cognitive narrative involvement. General Acceptance: R^2 = .14, $F(3,37)$ = 1.98, Behavioral Intention: R^2 = .15, $F(3,37)$ = 2.19, Communicative Action Intention: R^2 = .32, $F(3,37)$ = 6.98**; ** p < .01.

While the models with emotional narrative involvement as mediator are only showing very small effects (cp. Table 13), the cognitive narrative involvement seems to be more relevant in this model (cp. Table 12). Particularly the effects on the participants' behavioral intention and communicative action intention were of medium strength. The confidence intervals included zero, but only marginally. The confidence intervals for

the indirect effect through narrative involvement on participants' behavioral intentions and the communicative action intentions included zero. They suggested that with every unit increase of message construal (on a scale from 1 to 5) the Behavior Intention and Communication Action Intention decrease by approx. 0.4 units, mediated by cognitive narrative involvement.

6.3 Discussion

The presented research examined the mental construal of organ donation messages on television, specifically the construal level at the message encoding stage and individual differences in action identification. Instead of message features, the participants' mind-sets were manipulated (i.e., abstract or concrete processing), using the perceptual priming approach before media exposure (Freitas et al., 2004). The goal of this study was to introduce the pre-exposure construal level mind-set as a relevant explanation of mass media effects on attitudes and knowledge. The related outcomes thus included the memory recognition of facts from the target message, attitudes towards organ donation, and psychological distance to the health issue. A second aim of the study was to add the media users' perspective as relevant comparison dimension. This was done by including the media users' subjective experience of the target message as abstract or concrete presentation of information. Finally, the study included aspects of narrative involvement with the target message. This aimed to explain more of the relationship the construal level mind-set has on the entertainment processes of the media user.

The results were mostly not supportive of the theoretical assumptions. The experimental manipulation of the construal level mind-set only partially showed an effect of the message abstraction participants displayed in their thought listings. I will discuss the individual aspects of the study hereafter, explore alternative hypotheses, and discuss methodological issues.

6.3.1 Construal level mind-set.

An effect of the perceptual priming task on the message construal was only noticeable in the high construal level group. Three points offer explanations for this result. First, the partial result is possibly caused by the dynamic portrayals of abstract and concrete features the documentary offered. The target message of this study, as documentary about organ donation, could have influenced the situational construal level of the participants for sure. Visually and auditorily the audiovisual text possibly uses a

number of abstract or concrete primes (Amit et al., 2009; Amit et al., 2013). The experimental effect should have carried over these influences, similar to what would be expected for the effect of the individual difference in action identification. If the message influence was indeed superior, no differences between the experimental groups should occur.

Secondly, the manipulation used for the study, a priming task based on Freitas et al. (2004), was administered three times to fortify the effect. The tasks used three actions and participants had to either come up with how they would perform the action (concrete) or why they would perform the action (abstract). The example tasks used here were kept close to the original priming task specification (cp. Section 6.1.4). This also means they were not domain specific, for example, to a health issue. The actions used were unrelated to the topic of the target message, which should have supported the argument that a construal level mind-set is an independent mind-set, which widely affects all cognitive processes and mental representations. Given that the research in Construal Level Theory and on action identification concentrated on either the construal of actions or objects, the assumption of an independent mind-set could be inaccurate for the construal of evaluations and judgment tasks. Here the idea of construing not only behavior, but also attitudes could mirror a deliberative state much more than an implemental state (Freitas et al., 2004). For such deliberative matters, which are not directly connected to action implementation it could be a possibility that the construal level mind-sets are domain specific. Further research extending the narrow boundaries of existing tests is needed to answer this question.

Third, the central methodological issue in this study was the access to the cognitive level of abstraction participants applied when construing the target message. This could also be the source of this issue. First of all, the thought-listing technique from Petty et al. (1981) employs a post-hoc method. Assuming that language use does show mental construal (Semin, 1994, 2008), thought listings do not measure construal of the message, as it would happen during exposure. Instead they would measure the level of abstraction in the active mental representations of the target message. This might in fact be different from the construal level mind-set the participants had during exposure. Yet, in the spirit of a parsimonious research project it entailed one of the few options that approximated the construal level at the encoding stage of message processing. Secondly, one particular benefit of this technique is the fact that it allowed a slightly more implicit assessment of participants than self-reports would have. In its

nature, however, it is also entailed that thought listings require an interpretational effort from the researcher, to assess the theoretical constructs in question—in other words, to make sense of them. Two theoretically closely guided options were assessed in this study, by comparing linguistic and semantic coding. Results and implications from both coding schemes will be critically assessed hereafter.

Linguistic category model. The linguistic category model (LCM) was introduced in Section 3.3.1. The theoretical notion assumes a hierarchal structure in language describing people and their behaviors. This hierarchy ranges between a broad and abstract reference to a person and their behavior versus a concrete and particular reference to a specific action (Semin & Fiedler, 1988). The more abstract the language use, according to this theory, the more interpretative freedom is available, and thus, the applied categories are more inclusive.

Concrete actions refer to things that are almost all directly observable and easily verifiable (talking, walking, eating). Slightly more abstract references allow the receiver of the communication to assume a number of discrete behaviors, for example A is helping B. Here, the form of helping is unclear and can include various discrete actions. Internal states (e.g., liking, hating) and adjectives (A is mean to B) further decrease the extent to which a concrete action is identifiable. This hierarchy is qualitatively similar to the Action Identification Theory introduced in section (cp. Section 3.1). By using construal in this study not only with reference to action construal, but also construal of objects, people, attitudes, actions, and the free combination of all, it could be expected that the instrument only detected part of the construct message construal, yet to do so with accuracy. The manipulation check of the LCM score showed a small effect of the abstract construal level mind-set manipulation, but failed to produce a significant difference, especially between the concrete construal level mind-set and the control group. Contrary to my expectation, the mean of the control group did not fall between the two conditions; it was rather almost not distinguishable from the mean of the concrete mind-set manipulation condition. On the one hand, the manipulation could have been too weak to counteract possible influences by the target movie. On the other hand, the missing effect on concrete message construal would suggest a somewhat low default construal level among the participants.

One explanation for this result lies in the experimental lab setting, where a lower construal level could be a natural reaction. I have argued a form of cognitive tuning can be found in Action Identification Theory, because action identification is flexible to the

situational demands (cp. Section 3.1) and I have prominently discussed the cognitive tuning assumption from mood-as-information theory (cp. Section 4.1.3). Based on these example, also a lab experiment could constitute a new or uncommon setting, quite similar to a negative mood, that motivates a more concrete construal of the situation (Bless, Clore, et al., 1996). Action Identification Theory has shown that individuals tune their action identification to a more concrete level in new situations in order to master them accordingly (Vallacher & Wegner, 1987, 2012) and that this carries over to activate more abstract categories (Levy et al., 2002). Furthermore, undergraduate students did the recruitment of the participants as part of a research methods course. They reported having difficulties finding participants with the offered vouchers and chocolate bars, as many on campus studies offered higher rewards.[20] This could suggest low motivation and accuracy in participants. This would further explain why many participants then neglected to fill out the full questionnaire leaving the study with only a small number of total participants.

Against this alternative explanation and against the validity of the measure stood a negative correlation between the behavior identification score (BIF), which was used to measure the individual propensity of participants to more abstract or concrete thinking, and the LCM score (cp. Table 8). Particularly because the BIF was designed to measure the construal of actions, it should have correlated positively with the LCM score, if the LCM score mostly captured the abstraction of interpersonal actions, as assumed by theory and existing empirical evidence (Vallacher & Wegner, 2012). This relationship would counteract the cognitive tuning assumption, because the BIF should react in the same way to the experimental lab situation as the LCM, if it were to be the responsible mechanism for these results. Previous research has used the BIF also as measurement of outcomes of abstraction manipulations and shown it reacts to situational demands (e.g., Freitas et al., 2004; Fujita, Henderson, et al., 2006).

This leaves to argue why the LCM did only partially detect the predicted change in message construal. The linguistic coding scheme becomes overly complex in thought-listing tasks, if they contain a majority of state and attitude statements instead of action statements. As I have introduced, the LCM assumes overall four detectable levels of language abstraction. The thought-listing task did not limit or guide the participants in their text production (Petty et al., 1981). As intended, many voiced their attitudes towards the issue or the documentary. Take for example a statement like

[20] Walk-ins were no option for this experiment, because the lab was located in a building off campus.

"Organ donation is scary", a typical statement format in this thought-listing data collection. Linking verbs like "is" have no meaning by themselves, however they can be the only verb in a sentence. The coding scheme suggests in these cases:

> To correctly code the part of a sentence containing a linking verb the following questions should be answered: Does the part of the sentence imply an action? If this is not the case, the linking verb should not be coded. The "supplier of meaning" determines how the part of the sentence should be coded. If the "supplier of meaning" refers to an emotional consequence of an action, it should be coded as SAV [state action verb, author] (…). If, in contrast, the "supplier of meaning" refers to a personality trait, it should be coded as ADJ [adjective, author]. (Coenen et al., 2006, pp. 4-5)

More often than not the thought listings produced by the participants in this study did not refer to actions, the core of the LCM hierarchy. Even liberally applying the LCM, for example, by not only considering person or action references, but also object traits, the linguistic coding scheme rates such statements as adjectives, the most abstract linguistic category. Additions that would suggest a more personal consideration and could thus stand for a more concrete thought, like "to me, organ donations are scary", make no difference according to the LCM. The coding scheme knows only two categories for such thoughts, thereby limiting the discriminatory ability of the measurement. Auxiliary compositions like 'I want to start an organ donation register drive' are handled similarly and fall either into the most abstract category adjectives or into interpretative action verbs. Subordinate clauses, like in this example, 'I was remembering the time that I needed to have blood drawn for a test and it was the worst experience. It was so scary and I almost fainted', are complex and ambiguous. '[T]hat I needed to have blood drawn' qualifies 'time' in this sentence, like an adjective. The coding instructions here assume that the clause as a whole is coded as adjective (very abstract), so long as it is not an interpersonal term. Imagine the clause was, 'I was remembering the time when Susi told me to get my blood drawn […]'. In this case the qualifying clause would not be coded as adjective, because it is interpersonal and thus is handled by the general LCM rules (told = descriptive action verb, get = here auxiliary verb, drawn = descriptive action verb).

The thought listings obtained in this study, however, contain only very little interpersonal phrases and are thus more often categorized on the abstract end of the spectrum. Fiedler (2008) discusses briefly the possibility of using the LCM to implicitly

assess stereotypes and attitudes. As seductive this linguistic instrument seems, open thought listings seem an unfit corpus for the LCM coding, because they have a slight overweight in passive constructions, incomplete sentences (phrases), and object or state descriptions. Although the LCM offers an extensive toolbox for many speech varieties, it is little flexible and accurate aside from interpersonal communication. A combination with findings about abstractness and concreteness in nouns would be helpful, for example based on research suggested in Section 2.2.1 by Rosch (1975); Rosch et al. (1976). Furthermore, a more comprehensive measurement of the different domains of abstract thinking should include not only the abstraction of actions but also the psychological distance or the conveyed desirability in the participants' thought listings.

Semantic assessment of message construal. I used a semantic coding scheme for the thought listings to assess the level of abstraction in the participant's message construal. I oriented this coding scheme largely on a published method by (Hong & Lee, 2010). In Experiment 3 of their paper, they assessed thought listings from individuals after the exposure to an advertisement. As in the study at hand, Hong and Lee (2010) asked the participants to note down all thoughts they had during exposure. The differentiation was made dichotomously between abstract and concrete thoughts and later summed up. A fundamental benefit of such a semantic categorization was that it could include various domains of abstract and concrete construal. It is not particularly bound to thoughts that include interpersonal actions and can much better incorporate thoughts that express attitudes by referring to the desirability, idealism or pragmatism of a situation, goals, and feasibility concerns.

The manipulation check using this measurement for message construal appears to adhere to the hypothesized effect of the mind-set manipulation more closely (cp. Figure 8). Problematic are, still, the probabilities of these results, which allowed no reliable conclusion. The results could be largely due to chance. Of course, the decision whether a single thought is abstract or concrete is highly subjective and has to deal with a large portion of unexplained variance. There was no association of the Hong and Lee (2010) abstraction score with the LCM (cp. Table 8), which is suggestive of its unreliability, given that the LCM score has captured at least part of the message construal. Further, this missing association with either of the linguistic abstraction, any hypothesized outcome, or the subjective abstraction suggests that it is completely uncertain, which construct the Hong & Lee abstraction score measures.

6.3.2 Construal level effects on the outcomes.

As a result of the two manipulation checks, hypotheses including message construal were further tested using only the LCM measurement as indicator. The missing experimental effect of the concrete construal level mind-set manipulation repeatedly showed in the following tests. If any, the effect stemming from the abstract construal level condition compared to the non-manipulation control group yielded the only significant or close to significant effects. For example, the indirect effect of the abstract construal level condition (relative to the control condition) on memory recognition through the participants' message construal was marginally not significant. The coefficient, however, supported the predicted direction. The participants in the abstract construal level group actually presented better memory recognition, because they showed more abstract message construal. An advancement and substantiation of this finding could be to include concrete items instead of only abstract items, using a metric measurement, or even an implicit measurement of memory recognition.

An additional analysis comparing the second control group, which did not watch the target message or get a treatment, with the three experimental groups, showed that the movie did activate information about organ donation. This lends support to the necessary condition that the used memory recognition test did not simply tap into the general knowledge about organ donation, but that it actually captured the activated or newly acquired information about the issue from the target message.

For the attitude outcome none of the predicted effects showed in the data. Neither direct effects nor indirect effects were visible. This is further complicated by the fact that the estimates of the central relationships are not only unreliable. The influence of message construal on attitudes in the data at hand was also contrary to the initial predictions. It is nearly impossible to attribute these results to a single methodological issue. First, the partially failed manipulation of the construal level mind-set could be responsible for the inability to assess the direct effects. As discussed in the previous section, the assessment of the participants' message construal via the linguistic category model (LCM) only covers part of the theorized construct "abstract thinking", which is in the focus of the investigation. Mediation effects of message construal could be hard to detect because of this. Secondly, the target movie or the pre-manipulation construal level mind-set of the participants could be a source for unexplained variance in the outcomes. Yet, a systematic influence of the target movie is not supported in the data. The small mean difference in the attitude scores could suggest that very little change in

message construal was produced by the manipulation, or the change produced by the manipulation was nullified by the target movie. The movie was rather long, providing an ecological target message, but at the same time many unsystematic influences. Furthermore, the study was conducted in 2012, while a debate about fraud in organ donation practices in Germany was still present in the media.

Central advancements for future studies should include not simply a larger sample, given the path models controlling for sex (and age) are most likely underpowered, but a better measurement of message construal.

The additional analysis including the second control group, who did not watch the target message, was used to put the observed results into perspective. While on the two sub-dimensions General Acceptance and Communicative Action Intention no meaningful group differences to the second control group was found, on the dimension Behavior Intention particularly the first (non-manipulation) and second control group differed significantly. The likely explanation is that the target movie did activate cognitions about actually becoming an organ donor and the actions that would be entailed to become a potential donor, like signing an organ donor card. The fact that there was no significant difference between the first and second control group on the other dimensions could suggest that the movie mainly activated behavioral cognitions. Particularly, in this case a relationship with the LCM measure of message construal would have been relevant, because, as I argued earlier, the LCM-based coding should centrally capture the abstraction of actions. A lack of support for this relationship calls the measurement further into question.

Finally, the psychological distance outcomes did show a similarly unreliable and counterintuitive structure of results. For all three assessed items of psychological distance more abstract message construal was associated with less psychological distance. Given the small sample size and a probably small effect, these results are unreliable. Furthermore issue-related psychological distance is hard to assess. The psychological distance to the issue of organ donation was the sought theoretical construct. This entails so many different associations, that the operationalization of social distance to imagined individuals and the temporal distance to an imaginary event could be fairly blind to it. Furthermore, because of the already large study it was measured using single items.

Alternative explanations. A recurring issue in the data seems to be a negative association between the message construal and the outcomes, when I have predicted

throughout that abstract message construal would be associated with more positive attitudes and higher psychological distance relative to more concrete message construal. As the literature review has shown, abstract construal is reliably related to psychological distance. Specifically, the two concepts are believed to share a bidirectional relationship (Liberman, Trope, McCrea, et al., 2007). It is part of my argument that abstract message construal possibly leads to more psychological distance to the health issue and in the process makes more abstract evaluations accessible, for example moral, ideological, or higher-order evaluative judgments. Psychological distance is often also associated to perceived relevance of a topic (Levy et al., 2002). Given this line of thought, abstract or very concrete construal could bias the relevance of a target issue to the self. This alternative hypothesis would be that abstract construal of a mediated message leads to more psychological distance to the issue and results in decreased relevance of the message's topic. Obviously, abstract thinking as conceptualized in the present work does involve more concepts than the activation of psychological distance. Other judgment domains, like positive or negative associations or ideology would be inflicted, which is why this hypotheses was not favored.

6.3.3 Action identification preferences.

The hypothesized impact of the action identification preference as individual trait on the movie construal was based on previous findings showing a stable relationship between individual preferences for abstract or concrete action identification and perceived psychological distance (Liberman & Förster, 2009; Wakslak & Trope, 2009), decision making (Liberman & Trope, 1998), and social judgments (Malkoc, Zauberman, & Bettman, 2010). The research shows that individuals with an abstract action identification tendency base judgments and decisions on abstract and distant features. The data yielded by the present study contradicts previous research. Individuals with a concrete individual construal level tendency showed slightly more abstract message construal in their thought listings. The participants over all were more likely to identify actions by their low-level, concrete features. This offers a possible explanation of why I found the primes to be only partially effective on the participants' message construal. The effectiveness of the abstract construal level prime could have been due to the naturally rather concrete individual action identification tendency.

Methodologically, the participants were only given a selection of items from the original BIF item catalogue (Vallacher & Wegner, 2011). This could have led to a possible reduction of validity and reliability at the same time. It is not possible to assess

the reliability of the selected items at this time, but a reduction was necessary to keep the study economical in its length; likewise a pre-study that was devoted to test the selected items was also deemed uneconomical.

6.3.4 Subjective abstractness ratings in context.

To extend the theoretical potential of the study, I assessed how media users perceive the presentation of abstractness in an audiovisual format. It could be expected that the media users only partially perceive abstractness in the media content or can only in part provide information about the level of abstractness in the content. Yet, a relationship between the message construal and the media users' subjective experience of the content does support the underlying assumption that besides situational, individual, and cultural factors, also the presentation of media content influences the mental representation.

The correlational analysis showed that only the linguistic assessment of message construal showed a meaningful association to the participants' subjective experience of abstract presentation in the documentary. There was no association with the Hong & Lee cognitive abstraction score. This would suggest that the abstract presentation features that were captured by the subjective experience instrument did affect a small portion of the message construal. This result is unchanged by critique I noted on the LCM measurement earlier on. While it seemed to capture only a small proportion of cognitive construal of the message, namely the action and behavior-related abstraction, these could well be related to the participants' subjective experience of the thoughts. The fact that the subjective experience of abstractness in the media content does again only relate to the LCM measurement supports the decision to drop the Hong and Lee (2010) abstraction score from further analyses after the main analysis.

6.3.5 Narrative involvement with the target message.

Finally, the last research question did introduce the concept of narrative involvement to the inquiry how abstract or concrete thinking about mediated health information can affect attitudes and social judgment. Two sub-dimensions were investigated, the cognitive involvement with the narrative included a rather strong mental attentiveness to the narrative unfolding and an emotional engagement with the narrative. The documentary illustrated various figures in separate storylines, much like fictional formats do. Specifically, emotional involvement with the non-fiction

characters through processes like identification and empathy are likely to occur both in non-fiction and fictional narratives.

The results showed that narrative involvement has a negative relationship to the message abstraction, but only for the linguistically determined message abstraction. This correlation was mainly driven by the second thought-listing time point, but not the first. It could suggest a recency-effect (i.e., that the second part of the documentary and the related thoughts were more strongly related to the later self-reports of narrative involvement). Narrative involvement was assessed very late after the participants watched the target message and could mainly have been determined by the end of the documentary. Of course, the correlational nature of this relationship does not allow inferences about the causality. Yet, the correlation of message construal and subject experience of abstractness supports the argument for a recency-effect. In this instance also the second time point of message construal showed a marginally meaningful relationship with the subjective abstractness, but not the first time point (cp. Table 8).

The directions of all associations between the message construal as well as subjective abstraction ratings and narrative involvement are negative. They showed that the more abstract the message construal was or the more abstract participants experienced the presentation of the documentary, the less narrative involvement they experience. The result that narrative involvement is positively related to the attitude outcomes replicates findings from narrative persuasion research (Green & Brock, 2002; Appel & Richter, 2007). Further the analysis indicated that in the case of the documentary the negative effect of message construal on behavioral intentions and communicative behavioral intentions is partially due to the participants' cognitive narrative involvement. The results overall suggest that on the one hand, a concrete construal of the narrative information actually did allow for more involvement. Additionally, a more subjectively experienced abstractness of participants was associated with less narrative involvement. On the other hand, these findings could point at the central difference of narrative and non-narrative messages. All previous findings from Construal Level Theory or neighboring theories, particularly the ones including distinctive mediated messages of any kind (Fujita et al., 2008; Hong & Lee, 2010; Förster & Denzler, 2012), dealt with non-narrative information modes.

7 Study 2

Goals of the second experiment were to investigate mood as a situated factor, to include cultural differences in information processing, and to establish alternative ways to measure the mental construal of media users experience. The situated mood of individuals has been identified as central factor in information processing (Clore et al., 2001). The central hypothesis for this experiment predicted that individuals in a positive mood show more positive attitudes towards blood donations, because the situated mood of individuals influences the level of abstract information processing (H1b). Furthermore, the experiment introduces the hypothesized cultural dimension using samples from two countries. Based on the thoughts developed in Section 4.3 about the cultural differences in abstract and concrete information construal, the experiment was conducted both in the United States of America and Germany, resembling two cultures that differ on the dimension of collectivism (H3), for example according to Hofstede (2001). Individual differences in abstract and concrete action identification were also kept as a factor potentially determining the message construal (H2), so that the study should offer further answers on the leading research question about how situated, cultural, and individual factors impact the abstract and concrete processing of mediated information and resulting attitudes and inferences. As attitude outcomes I included the *general attitude for and against blood donation*, *behavioral intentions*, and the *perceived relevance of blood donation*. It was assumed that the attitude outcomes differ between the experimental groups (mood condition), the quasi-experimental groups (country), and depend on the individual preference for more abstract relative to more concrete action identification, because these factors affect the message construal in media users (H5, H5b-H5d). Similar to the previous study, psychological distance to the health issue was also considered as outcome due to changes in the individual's message construal level (H6). Figure 13 summarizes the basic hypotheses.

Deliberate changes in the experimental set-up were based on findings from Study 1. Given the complex audio-visual stimulus in the first study and the arising problems in the measurement of construal level, this second study used a printed target text about a public health issue (instead of a target video clip) that conveys the health information. The text was a short persuasive information about the need for blood donations; it was intentionally kept non-narrative to reduce the confounding influences of narrative involvement that the first study suggested.

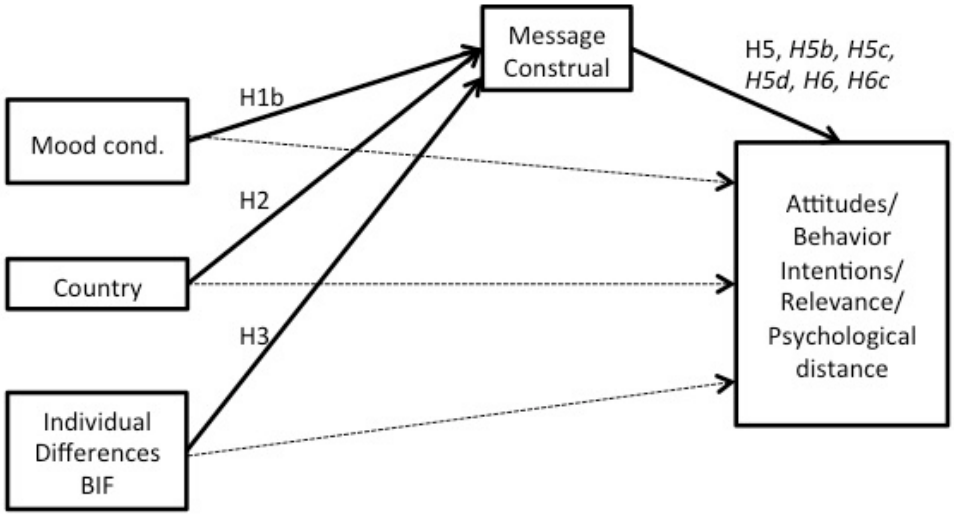

Figure 13
Hypothesized model for Experiment 2 with individual hypotheses marked.

Similar to the set-up of Study 1, participants answered questions to determine their individual action identification tendency in an ostensible first study prior to the treatment. Then they watched a short video clip as mood manipulation. In an unrelated second study, they were asked to list their thoughts and answer questions concerning their attitude towards blood donation. Rather than to solely relying on self-reports, participants were asked to list their thoughts (open thought-listing technique). To offset the discussed issues with the linguistic and semantic coding schemes used in Study 1, however, I am introducing a more elaborate method to interpret the thought listings. Based on the literature review, I derived a multi-dimensional coding scheme, comprised of six dimensions, which will be introduced in length in the measurement section.

7.1 Method

To evaluate the outlined hypotheses, a 2 (Positive/Negative Mood) x 2 (United States/Germany) between-subject (quasi-)experimental design was administered online.

7.1.1 Participants.

A convenience sample of students in the United States received course credit for participating at a large private campus on the West Coast. In Germany, students participated as part of a course requirement and recruited friends as part of their course work at a mid-sized University in South Germany.

A total of N = 325 participants answered at least some of the pre-treatment questions. The following steps were taken in order to identify outliers and corrupted or

biased cases: Fifteen participants quit the study before watching the manipulation movie. Amongst the 310 participants who logged on the mood manipulation page of the study, no significant difference of missing items was found comparing the positive mood and negative mood manipulation. There was also no significant difference in missing values between participants from Germany and the U.S.[21] In a next step, participants were excluded from the hypotheses tests based on their missing items (out of 57 central items and 10 thought-listings). The participants who quit the study on the page directly following the mood manipulation (n = 34) had only answered the pretest questions and listed no thoughts. Amongst these participants there was no observable difference in missing items between the positive manipulation group (n = 21) and the negative manipulation group (n = 13). Therefore, they were excluded.[22] For the remaining 276 participants, the time they spent watching the manipulation movie was considered as a criterion. There was neither a significant difference between the participants watching the positive (n = 140) and the negative mood-manipulation movie (n = 136), nor between the countries in terms of the time spent on the movie page.[23] Twenty-five percent of those participants (n = 69) only watched a maximum of 45 seconds of the four-minutes-long clips. These 69 participants were excluded together with the participants who were deemed outliers, because they lingered on the movie page for more than 10 minutes (n = 6, upper 1% of the distribution, $z > 2.58$) or did not produce any thought-listings (n = 67).[24]

The final sample of participants (N = 187) was on average 21.05 years old (SD = 1.85) and included 45 male participants. The German subsample (n = 93, M = 21.59, SD = 1.81) was on average one year older than the U.S. subsample (n = 94, M = 20.52, SD = 1.75). The mean age difference, −1.07, was significant, $t(185) = -4.11$,

[21] Missing values: positive mood manipulation (n = 161): M = 11.60, SE = 0.77; negative (n = 149): M = 9.98, SE = 0.68. The mean difference, –1.63, BCa 95% CI [–3.73, 0.69], is not significant, $t(308) = -1.57$, $p > .05$, $r = .007$. Germany (n = 183): M = 12.54, SE = 0.69; U.S. (n = 142): M = 10.84, SE = 0.89. The mean difference, 1.70, BCa 95% CI [–.81, 4.09], is not significant, $t(323) = 1.53$, $p > .05$, $r = .007$. Confidence intervals are based on 1,000 bootstrapped samples, unless noted otherwise.

[22] Missing values: positive mood manipulation M = 35.10, SE = 1.00; negative M = 34.08, SE = 1.01. The mean difference, 1.01, BCa 95% CI [–1.74, 3.70], is not significant $t(32) = .659$, $p > .05$, r= 0.01.

[23] Time spent on the movie: negative movie M = 04:30 minutes, SE = 00:24 minutes; positive M = 02:42 minutes, SE = 00:11 minutes. The mean difference of 01:48 minutes, BCa 95% CI [01:02, 02:45], is significant $t(274) = 4.08$, $p < .05$, $r = 0.06$. Country difference: Germany (n = 153) M = 03.14 minutes, SE = 00:15 minutes, U.S. (n = 123) M = 04:02 minutes, SE = 00:23 minutes. The mean difference of -00:48 minutes, BCa 95% CI [–01:51, 00:06], is not significant $t(274) = -1.77$, $p > .05$, $r = 0.01$.

[24] The number of missing thought-listings was equally distributed between positive (n = 21) and negative (n = 17) mood manipulation, Pearson's χ^2=.192, $p > .05$, as well between countries: Germany (n = 33), U.S. (n = 20), Pearson's χ^2=.913, $p > .05$.

BCa 95% CI [−1.61, −0.54], $p < .05$, $r = .08$. The sex of the participants was equally distributed across the experimental groups, $\chi^2 = .78$, $p > .05$ and the countries, $\chi^2 = 1.53$, $p > .05$. Participants in the U.S. were mostly undergraduate students and seven participants had a Bachelor's degree. Participants in Germany were undergraduate and graduate students.

7.1.2 Procedure.

All participants received a de-personalized link to the online protocol; the study started with a consent form. After consenting to the study, participants received an ostensible "first" study, which was masked as a test run of items for an unrelated, later research project. Participants answered the individual difference items in a randomized order. Again, this questionnaire was administered first, because the BIF questionnaire is known to react to construal manipulations (Burgoon et al., 2013). Participants then received the mood manipulation (positive or negative) watching a four minute long clip. They reported their mood and then moved on to the so-called "second" and allegedly unrelated study. Here, participants read a short stimulus text about blood donation in their respective country (cp. Appendix 1.1). Afterwards, they were asked to list the thoughts they remembered to have had while reading the blood donation message. After the thought-listing task, participants were asked to respond to the outcome measures. Next, participants were prompted again with each of the thoughts they wrote down previously and were asked to rate each thought's valence. Finally, participants' donation experience and social demographics were examined. Participants were eventually thanked and forwarded to an unrelated online protocol to provide identifying information for course requirements and credit.

7.1.3 Mood manipulation.

Previous research by Beukeboom and Semin (2005) provided the stimulus movies to manipulate the mood of the participants. To induce a happy mood, participants were presented with an approx. four minute long part from Walt Disney's "The Jungle Book", where Mowgli is singing with Baloo, the bear (Disney & Reitherman, 1962). The tune was "The bare necessities", which was exclusively written for the animated movie. American participants saw the original version, while German participants saw the dubbed German version of this clip. The negative mood stimulus was also an approx. four minute long clip from the movie "Sophie's Choice" (Paulka, Barish, Gerrity, Starger, & Paulka 1982). The clip showed the key scene of the movie,

where an officer in the Auschwitz death camp forces Sophie, a Polish woman and mother of two, to choose which child of hers will live and which will die. In the original English movie the characters in this flashback scene speak German with subtitles. The same clip was therefore used for the American and German participants.

7.1.4 Materials.

The target message used in this study was a short blood donation information. It was comprised from blood donation information from the U.S.-American and German Red Cross websites. After the headline "Donate Blood!", the information included why blood can only be collected from donors and in what medical situations it is used. A short summary of the mismatch between blood demand, donor eligibility, and blood donations followed. The second half of the message ran through the donation process, including the free physical assessment and the snack and drinks afterwards. The picture accompanying the message was selected from the German Red Cross promotional material available on the organization's website, depicting a mid-aged woman during blood donation with a female nurse (cp. Appendix 1.1). The blood donation message was pretested for participants' liking, credibility, and ease of understanding.[25]

7.1.5 Measurements.

Manipulation check - Mood. Participant's mood was assessed with two questions asking the participants to what extend they were experiencing positive and negative feelings at this moment. Answer options ranged from 1 (*not at all*) to 9 (*very much*) and both questions were combined in one mean index after recoding the answer options for the negative feelings.

Action identification. Individual preferences for action identification were measured using the Behavior Identification Form (BIF) by Vallacher and Wegner (1989), which is a forced choice questionnaire. Participants were presented with 25 actions (e.g., "caring for houseplants") and two possible descriptions of each action.

[25] Measured on a 7-point Likert scale. Nineteen German participants (Age: $M = 20.48$, $SD = 1.71$, 1 male) judged the message as relatively realistic ($M = 5.42$, $SD = 1.31$), easy to read ($M = 6.37$, $SD = 1.01$), easy to understand ($M = 6.47$, $SD = .96$), balanced ($M = 4.37$, $SD = 1.11$), and well written ($M = 4.37$, $SD = 1.12$). Seven U.S. participants (Age: $M = 26.89$, $SD = 2.93$, 2 males) also judged the message as relatively realistic ($M = 6.00$, $SD = 1.83$), easy to read ($M = 6.43$, $SD = 1.51$), easy to understand ($M = 5.71$, $SD = 1.89$), balanced ($M = 5.29$, $SD = 1.60$), and well written ($M = 5.14$, $SD = 2.20$). The mean differences between German and U.S. participants were all non-significant:

- realistic: –.58, 95% BCa [–1.78, 1.02], $t(24) = –0.90$, $p > .05$,
- easy to read: –.06, 95% BCa [–.95, 1.25], $t(24) = –0.12$, $p > .05$,
- easy to understand: .76, 95% BCa [–.54, 2.32], $t(24) = 1.36$, $p > .05$,
- balanced: –.92, 95% BCa [–2.05, .43], $t(24) = –1.65$, $p > .05$,
- well written: –.46, 95% BCa [–2.10, 1.45], $t(24) = –0.62$, $p > .05$.

One description was more abstract ("making the room look nice") and a second description was more concrete ("watering the plants"). Participants were asked to choose which description best represented the action. Abstract alternatives were scored 1 and concrete alternatives 0. Subjects' individual action identification tendency was defined as number of abstract action alternatives chosen on the BIF (Vallacher & Wegner, 1989). Scale consistency was acceptable in the sample from Germany (M = 14.35, SD = 4.70, n = 93, Cronbach's $\alpha_{Germany}$ = .74) and the U.S. (M = 12.95, SD = 4.60, n = 94, Cronbach's $\alpha_{U.S.}$ = .80).

Message construal. Social psychological research has produced some initial work that captures the mental abstraction level, which is applied to social situations (Semin, Higgins, de Montes, Estourget, & Valencia, 2005; Fujita, Henderson, et al., 2006) using open thought-listing techniques. Linguistic (Coenen et al., 2006) and semantic coding (Beukeboom & Semin, 2005; Hong & Lee, 2010; Lutchyn & Yzer, 2011) of thought-listings (open and structured) was used to approximate the abstraction level that was applied during information decoding, thus bypassing self-reports.[26] A semantic coding scheme was adjusted to better indicate theoretically and empirically substantiated markers (cp. Section 3.3.2) of abstract and concrete construal. It is thus multidimensional and allowed exploring all dimensions separately as well as combined.

The first dimension of the measurement is called *valence* and rated whether the thought is positive or negative in nature. I assumed that more abstract representations should overall be more positive, whereas more negative thoughts should signal a more concrete representation. Based on findings from the mood-as-general-knowledge model (Bless, Clore, et al., 1996; Bless, 2001), positive mood can be related to abstract knowledge structures. The cognitive tuning assumption posits that mood serves as information about the situational cognitive demands and that negative mood diverges from the typical positive mood (Schwarz, 2012). This signals a demand for more concrete representations (Bless, 2001; Vallacher & Wegner, 2012). Thus, the valence of the participant's thoughts could be an indicator of their abstract or concrete construal.

The second dimension, *favorability*, is based on the assumption that arguments against an action are subordinate to favorable arguments. Theoretical work and empirical evidence suggest, for example, that favorable arguments are superordinate and abstract because they define the object's or action's inherent subjective importance.

[26] In the first study, I offset the LCM coding with a semantic coding based on Hong and Lee (2010). This semantic coding had no association with the LCM measurement (cp. Table 8). In the discussion section (cp. Section 6.3.1), I summarized the problems connected to the coding schemes.

In simple words, without favorable arguments, con-arguments have no value. Pro-arguments are also more salient than con-arguments in distant future situations and therefore abstract construal situations, whereas contras are equally salient in near distant situations, which marks a concrete construal level situation (Eyal et al., 2004). Thoughts that display a strong favorable standpoint thus rather indicate a more abstract mental representation, while strongly opposing standpoints can be considered stemming from a concrete mental representation.

The logic is similar for *desirability* (vs. feasibility) arguments. Desirability is superordinate to feasibility. Similarly, desirability arguments are more salient in psychologically distant (abstract) situations (Liberman & Trope, 1998; Sagristano, Trope, & Liberman, 2002; Lutchyn & Yzer, 2011). Feasibility considerations have more impact on psychologically close situations and thus are examples of concrete thoughts. Hence, the third dimension considered the weight of desirability versus feasibility concerns conveyed in the thoughts by the participants as indicator for abstract or concrete mental representation.

Psychological distance is also a hallmark predictor of abstract construal (Ledgerwood, Trope, et al., 2010; Trope & Liberman, 2010). Vast empirical evidence connects psychological distance to abstract mental construal and psychological proximity to concrete construal of information (Trope & Liberman, 2010) . It is unlikely that all sub-dimensions of psychological distance are touched in a single thought, which is why the fourth dimension measures the thought's relative *ego-centrality* on either one of the social, temporal, local, and hypothetical distance dimension. While a relative ego-centered thought would indicate a concrete mental representation, any psychologically distant statement should indicate relative abstractness of the thought.

As a fifth dimension the participant's thoughts were coded based on their implicit or expressed idealistic versus pragmatic concern. Resembling the logic of pros versus cons or desirability versus feasibility, Kivetz and Tyler (2007) argue that *idealism* is superordinate to pragmatism. It was thus an indicator for abstract mental representation in this study. Thoughts conveying pragmatic and instrumental concerns denote concrete mental representations (Burger & Bless, 2015). This also resonates with the arguments used by Eyal et al. (2008) that abstract judgments rely on moral and normative rules, while concrete judgments consider context-specific and therefore pragmatic information.

The final and sixth dimension was derived from Action Identification Theory and aims to categorize thoughts according to their *self-regulatory focus* (Vallacher & Wegner, 2012). According to theorizing, actions are hierarchically arranged in people's minds ranging from abstract action identifications that identify why an action is done or with what purpose or goal, while concrete action identifications recognize how an action is done, detailing the specifics of an action (cp. Section 3.1).

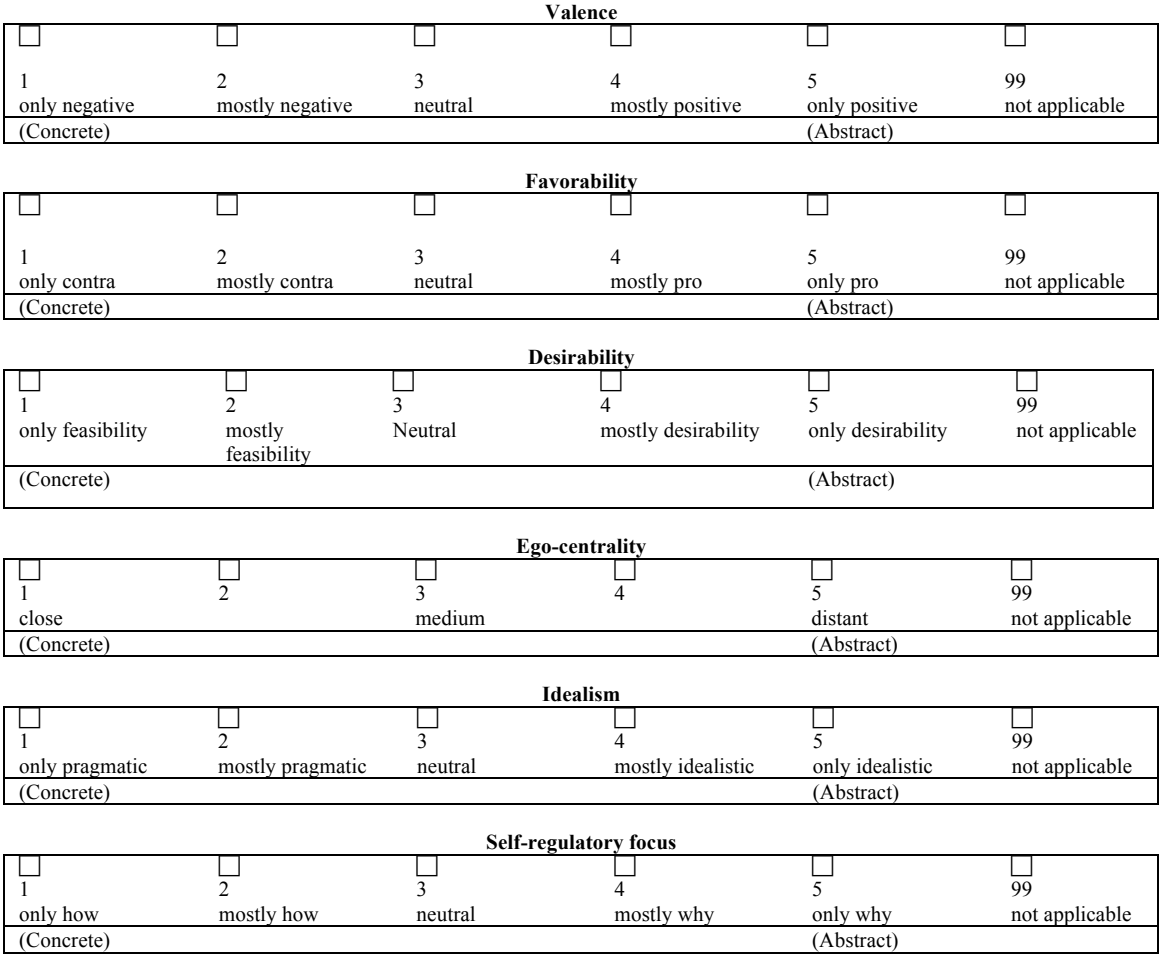

Figure 14
Rating scheme to assess level of construal multidimensional per thought.

All thoughts that implicitly or explicitly referred to an action in this study were categorized on this dimension. The dimensions were all rated on a 5-point scale detailed in Figure 14.

A trained graduate student-coder rated all thoughts. For training purposes, the coder was given excerpts from peer-reviewed articles and book chapters cited above, to get familiar with the theoretical aspects of the dimensions. The training used thought listings from previous data collections. Investigator-coder reliability was established using Lin's concordance correlation coefficient (CCC, Lin, 1989; Barnhart, Haber, &

Lin, 2007; Barchard, 2012).[27] I used the absolute concordance correlation coefficient, which compares raw scores and interprets every deviation as disagreement between coders (Barchard, 2012). It is therefore the strictest and most common understanding of agreement compared to relational or linear agreement, which is for example assessed using Pearson's *r* (Barnhart et al., 2007). For better interpretation of the CCC, which is a standardized measure, the root mean square difference of absolute agreement (RMSD) is also reported.[28] Based on 44 cases (55 thoughts) from the main data collection in both countries (17 U.S. cases and 27 German cases), investigator-rater-reliability was satisfactory across all categories, Lin's *CCC* = .80 (*RMSD* = 0.98).[29] Mean ratings of the individual dimensions are displayed in Table 14.

The agreement on the individual dimensions was also good to very good: valence, Lin's *CCC* = .86 (*RMSD* = 0.76), favorability, Lin's *CCC* = .83 (*RMSD* = 0.83), desirability, Lin's *CCC* = .70 (*RMSD* = 1.23), ego-centrality, Lin's *CCC* = .84 (*RMSD* = 0.85), idealism, Lin's *CCC* = .86 (*RMSD* = 0.86), and self-regulatory focus, Lin's *CCC* = .73 (*RMSD* = 1.21).

Table 14
Mean Ratings Message Construal on the Six Coding Dimensions

	Germany (n = 88)		U.S. (n = 82)	
	M	*SD*	*M*	*SD*
Valence	3.31	0.75	3.12	0.77
Favorability	3.65	0.63	3.56	0.76
Ego-Centrality	3.66	0.70	3.40	0.79
Desirability	2.46	0.93	2.61	0.90
Idealism	3.11	0.75	2.75	0.80
Self-regulatory Focus	3.58	0.65	3.53	0.69

Note. All ratings ranged from 1 (equivalent to concrete) to 5 (equivalent to abstract).

Attitudes. Societal benefits and individual costs of blood donation were assessed using 12 items. Items were adopted from previous research identifying positive and

[27] This correlation coefficient has not been applied frequently in psychology and social sciences to assess inter-rater data, although it has superior qualities over standard measurements of agreement for continuous data because it considers also differences in means and standard deviations between the raters. Estimates presented here are based on the supplement Excel sheet from Barchard (2012).

[28] The root square difference shows the raw mean difference between two raters in the original measurement unit. Perfect agreement is 0. The maximum is defined by the largest possible mean difference between to raters, depending on the used scale. In my case this would equal 4 (Barchard, 2012).

[29] For comparison: Pearson's *r* = .80 across all six dimensions. Interpretation guidelines do not exist for Lin's in the literature because they would be arbitrary. Given the interpretative nature of the ratings that make measurement disagreements more likely, a *CCC* of .80 can be considered a very good standard of absolute agreement.

negative attitude aspects of blood donation (Bednall & Bove, 2011; S. Y. Choi, Park, & Oh, 2012). Items read for example "I think blood donation does not contribute to other's well-being", "I think donating blood is an ethical behavior" (reverse coded), or "I fear I'll get bruised and sore arms from donating blood". Answer options ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). The items showed satisfactory consistency in both countries, Cronbach's $\alpha_{Germany}$ = .76 (M = 5.26, SD = 0.92, n = 93), Cronbach's $\alpha_{U.S.}$ = .74 (M = 4.85, SD = 0.91, n = 98), and were combined to a mean index. The initial mean index was reversed so that higher scores indicate more positive attitudes.

Behavioral intentions. The behavioral intention was a second indicator for participants' attitude towards blood donation. It was assessed using two questions on the intention to donate blood and intention to test eligibility for blood donation within the next 12 months (e.g., "How likely are you to donate blood within the next 12 months"). Answer options ranged from 1 (*absolutely not likely*) to 7 (*definitely*). Scale consistency was acceptable for Germany (Cronbach's $\alpha_{Germany}$ = .77, M = 3.99, SD = 1.60, n = 88), and the U.S. (Cronbach's $\alpha_{U.S.}$ = .87, M = 3.72, SD = 1.64, n = 92), and items were collapsed in a mean index of behavioral intentions ranging from 1 (*low behavioral intentions*) to 7 (*high behavioral intentions*).

Relevance. Relevance was included in the study as important indicator of attitudes. It was assessed by asking participants "How relevant is blood donation to you personally?", with answer options ranging from 1 (*highly irrelevant*) to 7 (*not at all relevant*) ($M_{Germany}$ = 4.83, SD = 1.54, n = 93; $M_{U.S.}$ = 3.82, SD = 1.53, n = 94).

Likelihood estimates. Given the frame of blood donation shortage the message implies, participants were asked to estimate the availability and the demand of blood donations. They were asked four questions: "What percentage of treatments in hospitals incorporates blood transfusions?" (Estimate 1, M = 44.16, SD = 25.26) and "What percentage of individuals will need a blood transfusion at least once throughout their life?" (Estimate 2, M = 41.62, SD = 25.42) as items for the estimated demand of blood donation. "What percentage of the U.S. [German] population is eligible to donate blood?" (Estimate 3, M = 66.64, SD = 18.44), and "What percentage of the U.S. [German] population donates blood on a regular basis?" (Estimate 4, M = 14.76, SD = 12.37) were the items referring to the availability of blood donations. Behind each question participants could insert three digits. Given a problematizing frame of blood donation shortage within the message used in this study and the critical health care

implications such a shortage has, Estimates 1 and 2 are reversed by the ego-centered logic of psychological distance. Because Estimates 1 and 2 asked for how often blood donations are needed, here higher numbers imply that it is also more likely to threaten the participants' health (psychological proximity) and lower numbers imply that it is less likely to concern the participants (psychological distance). In contrast, Estimates 3 and 4 referred to the availability of blood, by asking how many people donate blood or are eligible to donate. Thus, in this case higher numbers mean more people donate blood and imply less shortage. This, in turn, resembles more psychological distance. Estimates 1 and 2 will be treated as reversed coded.

Covariate. Aside from socio demographic markers, participants' experience with blood donation was assessed. To measure blood donation experience, participants were asked to indicate whether they are regular blood donors. They indicated this by a dichotomous choice between "Are you (a) a regular blood donor? (at least two times in the past 12 months) or (b) not a regular blood donor". Eight participants in the German sample and 8 from the U.S. sample indicated that they are regular blood donors.

Social demographics. Age, education, and sex were assessed as social demographic variables.

7.2 Results

7.2.1 Randomization check.

The individual difference factor action identification measured by the BIF (Behavior Identification Form, Vallacher & Wegner, 1989) was used to test whether the randomization did work, as it was administered in the pretest questionnaire. The BIF scores were not normally distributed in Germany ($z_{\text{skewness}} = -2.11$, $z_{\text{kurtosis}} = 0.92$) but in the U.S. ($z_{\text{skewness}} = -0.07$, $z_{\text{kurtosis}} = -0.68$). Homogeneity of variances could be assumed, for Germany $F(1,101) = 0.38$, $p > .05$ and the U.S. $F(1,96) = 0.15$, $p > .05$. Thus, the mean difference was bootstrapped using 1,000 samples. Both countries showed no action identification mean difference between the experimental groups. The mean difference in Germany, −1.29, BCa 95% CI [−3.15, 0.56], was not significant, $t(101) = -1.39$, $p > .05$, $r = .14$. The mean difference for the U.S. sample, 0.07, BCa 95% CI [−1.81, 1.95], was also not significant, $t(96) = 0.07$, $p > .05$, $r = .00$. The groups were further indistinguishable in terms of age (cp. Table 15).

The German mean age difference, 0.56, BCa 95% CI [−0.21, 1.32], was not significant, $t(101) = 1.48$; $p > .05$. The U.S. mean age difference, 0.49, BCa 95% CI [−0.22, 1.21], was also not significant, $t(96) = 1.37$, $p > .05$. Finally, there

was no sex difference between the experimental groups in Germany, $\chi^2(1) = 0.63$, $p > .05$, and the U.S., $\chi^2(1) = 0.22$, $p > .05$ (cp. Table 16). These results suggest that the randomization did work.

Table 15
Mean and Standard Deviations Action Identification and Age by Country and Group

	Germany		U.S.	
	BIF	Age	BIF	Age
Experimental Groups	*M(SD)*	*M(SD)*	*M(SD)*	*M(SD)*
negative mood	13.89 (4.45)	21.83 (1.71)	13.04 (4.70)	20.78 (2.01)
n	53		45	
positive mood	14.97 (4.98)	21.28 (1.91)	12.86 (4.54)	20.29 (1.46)
n	40		49	

Table 16
Distribution of Sex by Country and Group

	Germany		U.S.	
Experimental Groups	female	male	female	male
negative mood	39	14	38	7
positive mood	28	12	37	12
Total	67	26	75	19

7.2.2 Preliminary analyses

Participants watching the positive movie clip reported feeling better ($M = 7.21$; $SD = 1.37$, $n = 89$) than participants watching the negative mood induction ($M = 2.15$; $SD = 1.05$, $n = 98$). According to an independent *t*-test, the mood manipulation was successful and the mean difference, 5.07, BCa 95% CI [4.70, 5.45], was significant, $t(185) = 28.49$, $p < .05$, $r = .90$. The mood manipulation was also successful for both countries individually, but the U.S. sample showed significantly more extreme mood values than the German sample (cp. Table 17).

Preliminary analyses further revealed a sex influence on the dependent variables attitudes and behavioral intentions. Men ($M = 5.29$, $SD = 0.90$, $n = 45$) showed more positive attitudes towards blood donation than women ($M = 4.97$, $SD = 0.94$, $n = 135$). The mean difference, −0.32, BCa 95% CI [−0.64, −0.002], was significant, $t(178) = 1.98$, $p < .05$, $r = .14$. Further, men also showed more positive behavioral intentions towards blood donation ($M = 4.30$, $SD = 160$, $n = 45$) than the women of the

sample (M = 3.72, SD = 1.65, n = 135). The mean difference in behavioral intentions, −0.57, BCa 95% CI [−1.13, −0.01] was significant, $t(178) = 2.02$, $p < .05$, $r = .15$.

Table 17
Means for Mood by Country and Experimental Group

	Germany (n = 93)	U.S. (n = 94)	Total
Experimental Group	*M(SD)*	*M(SD)*	*M(SD)*
positive	6.91[ac] (1.19)	7.47[ad] (0.83)	7.21[e] (1.37)
n	40	49	89
negative	2.75[bc] (0.83)	1.44[bd] (1.46)	2.15[e] (1.05)
n	53	45	98
Total	4.54[f] (2.30)	4.58[f] (3.25)	

Note. Higher scores indicate a more positive mood.
[a] Mean difference, 0.56, BCa 95% CI [0.07, 1.19], is approaching significance, $t(87) = 1.94$, $p = .056$, $r = 20$.
[b] Mean difference, −1.31, BCa 95% CI [−1.66, −0.99], is significant, $t(96) = -7.77$, $p < .05$, $r = .62$.
[c] Mean difference, 4.16, BCa 95% CI [3.66, 4.59], is significant, $t(91) = 19.88$, $p < .05$, $r = .90$.
[d] Mean difference, 6.02, BCa 95% CI [5.55, 6.52], is significant, $t(77.41) = 24.77$, $p < .05$, $r = .94$.
[e] Mean difference, 5.07, BCa 95% CI [4.70, 5.42], is significant, $t(185) = 8.50$, $p < .05$, $r = .53$.
[f] Mean difference, 0.04, BCa 95% CI [−0.77, 0.80], is not significant, $t(167.30) = 0.10$, $p > .05$, $r = .04$.

Before moving on to the main analyses of the hypotheses, I analyzed the zero-order correlations among the studied variables (cp. Table 18). The pre-exposure mood reports of the participants showed small but significant correlations with the overall abstraction index and with the individual dimensions favorability, idealism, and self-regulatory focus. The dimension ego-centrality did not correlate with the sub-dimensions idealism and self-regulatory focus, but moderately with favorability, valence, desirability, and the overall index. Idealism correlated moderately with all dimensions but ego-centrality and the dimension desirability shows particular strong covariance with most other dimensions. This suggests that the dimensions indeed measure individual aspects of abstract and concrete mental representation, but that desirability, idealism, and favorability are outstanding constructs in this measurement. The individual propensity measurement BIF, assessing people's tendency to identify actions more abstract or concrete, shows small significant positive correlations with idealism and desirability. As could be expected, the attitude outcomes (blood donation attitudes, behavior intentions, and relevance of blood donation) showed small to moderate positive correlation amongst each other.

Table 18

Zero-Order Correlations of Study 2 Variables

	M	*SD*	*Min*	*Max*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Mood	4.56	2.81	1	9	–															
2. Favorability	3.61	0.69	1	5	0.16*	–														
3. Valence	3.22	0.76	1	5	0.07	0.56**	–													
4. Ego-centrality	2.54	0.92	1	5	0.10	0.33**	0.17*	–												
5. Desirability	3.53	0.76	1	5	0.09	0.57**	0.32**	0.27**	–											
6. Idealism	2.94	0.78	1	5	0.16*	0.29**	0.38**	0.03	0.49**	–										
7. Self-regulatory focus	3.56	0.67	1	5	0.18*	0.38**	0.05	0.10	0.57**	0.41**	–									
8. Abstraction Index	3.22	0.52	1	4.50	0.19*	0.78**	0.64**	0.54**	0.80**	0.64**	0.60**	–								
9. BIF	13.65	4.69	1	25	0.03	0.08	0.07	−0.03	0.13†	0.15†	−0.02	0.09	–							
10. Blood Donation Attitudes	5.05	0.93	3	7	0.02	0.29**	0.28**	0.09	0.24**	0.20**	0.06	0.30**	0.22**	–						
11. Behavior Intention Blood Donation	3.87	1.65	1	7	0.01	0.47**	0.38**	0.14†	0.35**	0.22**	0.12	0.41**	0.17*	0.51**	–					
12. Blood Donation Relevance	4.29	1.61	1	7	0.01	0.35**	0.32**	0.11	0.24**	0.24**	0.05	0.33**	0.20**	0.30**	0.52**	–				
13. Age	21.05	1.85	17	31	−0.14*	−0.01	0.01	−0.04	0.00	−0.11	0.01	−0.04	0.16*	0.01	−0.06	0.01	–			
14. est1 - What percentage of treatments in hospitals incorporates blood transfusions?	43.98	25.3	2	100	−0.01	0.09	0.03	0.13†	0.02	0.03	0.17*	0.12	−0.06	−0.05	0.01	−0.08	−0.09	–		
15. est2 - What percentage of individuals will need a blood transfusion at least once throughout their life?	41.75	25.61	1	99	0.09	0.13†	0.03	0.17*	0.09	0.00	0.13	0.15†	0.00	−0.02	0.02	0.11	0.09	0.45**	–	
16. est3 - What percentage of the [U.S./German] population is eligible to donate blood?	66.87	18.49	20	97	0.08	0.15†	0.18*	0.16*	0.08	0.01	0.02	0.19*	−0.09	0.15*	−0.04	0.08	0.10	0.12†	0.21**	–
17. est4 - What percentage of the [U.S./German] population donates blood on a regular basis?	14.78	12.31	1	68	0.06	0.01	0.07	−0.06	−0.11	−0.04	−0.01	−0.02	0.01	−0.22**	0.01	−0.01	−0.08	0.14†	0.10	0.01

Note. † $p < .10$, *$p < .05$, **$p < .01$.

7.2.3 Situational, individual, and cultural factors.

Main analyses. In Hypothesis 1b I predicted that a positive mood would lead to a more abstract message representation in participants compared to a negative mood pre-exposure. Further, H2 assumed that the more abstract the individual difference in action identification is, the more abstract is the message representation in participants. Finally, participants from a more collectivistic culture (Germany) should, according to Hypothesis 3, also show more abstract message representation than participants from a more individualistic culture (U.S.). The experimental and quasi-experimental groups were compared for differences in mental representation using individual action identification tendency as covariate. The covariate, individual action identification, was not independent from the cultural factor, as the BIF was more abstract for the German sample (M = 14.35, SD = 4.69, n = 93) than for the U.S. sample (M = 12.95, SD = 4.60, n = 94). This mean difference, −1.41, was significant, $t(185) = -2.07$, $p < .05$, $r = 0.15$. The multidimensional ratings of the thought-listings were averaged to calculate a mean score of abstract mental representation. This score was entered in a 2 (Mood) x 2 (Country) independent ANCOVA.

The ANCOVA revealed a small main effect of mood on the level of abstraction in the thought-listings, $F(1,165) = 3.56$, $p < .10$, $\omega^2 = .02$.[30] Participants in the positive mood group showed more abstract thought-listings (M = 3.30, SD = 0.51, BCa 95% CI [3.19, 3.41]) than participants in the negative mood group (M = 3.15, SD = 0.53, BCa 95% CI [3.05, 3.26]). This trend supports H1b. There was a non-significant main effect of country on the level of abstraction in the thought-listings, $F(1,165) = 2.55$, $p > .05$, $\omega^2 = .01$. As predicted, participants from Germany showed more abstract thought-listings (M = 3.29, SD = 0.53, BCa 95% CI [3.18, 3.39]) than participants from the U.S. (M = 3.17, SD = 0.50, BCa 95% CI [3.05, 3.29]). Yet, given the probability of this small effect, H3 is not supported based on this data set. Additionally, there was no interaction effect as it is illustrated in Figure 15, $F(1,165) = 0.02$, $p > .05$, $\omega^2 = -.01$. Finally, the individual difference factor measured by the behavior identification index (BIF) did not show any significant influence on the abstract or concrete representations in participants, $F(1,165) = 0.66$, $p > .05$, $\omega^2 = .004$. Hypothesis 2 is not supported.

A simple effects analysis was conducted. It showed that the message construal difference in the German sample, 0.18, 95% CI [−0.03, 0.38] approached significance,

[30] Equation for ω^2 for multi-factorial designs based on Fritz, Morris, and Richler (2012).

$F(1,180) = 2.95$, $p = .09$, $r = .13$, while the difference in the U.S. sample, 0.15, 95% CI [−0.06, 0.37] did not, $F(1,180) = 2.01$, $p > .05$, $r = .10$ (cp. Figure 15).

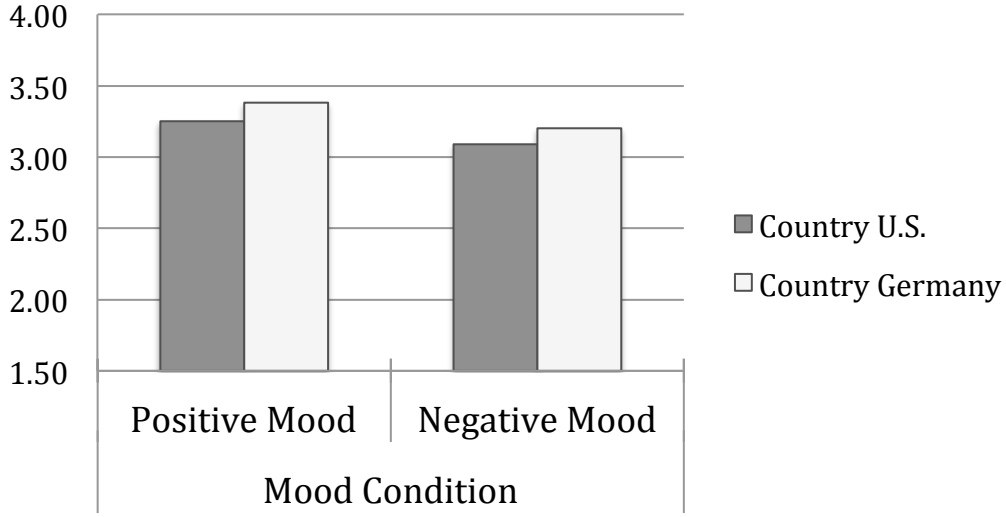

Figure 15
Mean message construal in thought-listings on a scale from 1 (concrete) to 5 (abstract) as a function of pre-exposure mood and country. Germany: $M_{positive} = 3.38$ (0.48), $M_{negative} = 3.20$ (0.53); U.S.: $M_{positive} = 3.25$ (0.50); $M_{negative} = 3.09$ (0.49).

Additional analyses. For a more detailed analysis, the individual dimensions of the multidimensional representation measure (valence, favorability, ego-centrism, desirability, idealism, and self-regulatory focus) were entered in a 2 (Mood) x 2 (Country) MANOVA.[31] The main effect of the mood manipulation was not significant using Pillai's trace, $V = .04$, $F(6,139) = 0.85$, $p > .05$, $\eta^2 = .04$. The second main effect of the country on the level of abstraction in the mental representation, $V = .07$, $F(6,139) = 1.60$, $p > .05$, $\eta^2 = .07$, as well as the interaction effect remained non-significant, $V = .01$, $F(6,139) = 0.29$, $p > .05$, $\eta^2 = .01$. Mean differences between the mood groups on the individual dimensions can be seen in Table 19. They adhere to the projected pattern of higher means and thus more abstract thoughts in the positive mood condition compared to the negative mood condition. Individual ANOVAs for the country differences revealed that participants from Germany showed significantly more idealism and desirability than participants from the U.S. in their thought-listings (cp. Table 20).

[31] The statistical assumption of multivariate normality was violated, which was complicated by the different group sizes. Even by the most liberal standards, probability values were not trustworthy (Field, 2013; Tabachnick & Fidell, 2013). The smallest cell for this MANOVA was 37 cases big (German, positive mood group). To assess the MANOVA, I randomly sampled 37 cases from all other cells, in order to equalize the initial group sizes. With equal group sizes, Pillai's trace is robust against violations of multivariate normality. However, this technique automatically reduces the power to detect effects.

Table 19
Analysis of Variance for the Six Individual Dimensions of Mental Representation by Group

	Positive mood condition $n = 74$		Negative mood condition $n = 74$				
Dimensions	*M*	*SD*	*M*	*SD*	*F*	*df*	par. η^2
Valence	3.28	0.72	3.24	0.76	0.12	1,144	0.01
Favorability	3.71	0.66	3.59	0.67	1.22	1,144	0.00
Ego-Centrality	2.63	0.82	2.48	1.03	0.87	1,144	0.01
Desirability	3.59	0.72	3.56	0.78	0.84	1,144	0.00
Idealism	3.10	0.70	2.91	0.81	2.37	1,144	0.02
Self-regulatory Focus	3.67	0.66	3.56	0.63	0.98	1,144	0.01

Table 20
Analysis of Variance for the Six Individual Dimensions of Mental Representation by Country

	Germany $n = 74$		U.S. $n = 74$				
Dimensions	*M*	*SD*	*M*	*SD*	*F*	*df*	par. η^2
Valence	3.34	0.72	3.19	0.75	1.36	1,144	0.01
Favorability	3.68	0.64	3.62	0.69	0.19	1,144	0.00
Ego-Centrality	2.51	0.96	2.60	0.91	0.36	1,144	0.00
Desirability	3.71	0.73	3.45	0.76	4.36	1,144	0.03*
Idealism	3.15	0.73	2.85	0.76	6.15	1,144	0.04*
Self-regulatory Focus	3.64	0.65	3.59	0.63	0.26	1,144	0.00

Note. $^{*}p < .05$.

7.2.4 Attitudes outcomes.

For the attitudinal outcomes (attitudes, behavioral intentions, relevance), I predicted that participants in a positive mood would show more positive attitudes towards a public health issue than participants in a negative mood (H5b), because participants in a positive mood would construe the health information more abstractly than participants in a negative mood. Similarly, H5c specifically assumed that individual differences in action identification tendency also predict differences in attitude outcomes, because abstract action identification too should overall lead to a more abstract construal of information compared to concrete action identification tendencies. Finally, H5d predicted that the cultural background (collectivistic and individualistic) also affects the attitudes towards a public health issue, because participants from a more collectivistic societal background would construe the health

information more abstractly than participants from an individualistic societal background.

The hypothesized mediation model (cp. Figure 13) was estimated using ordinary least squares path analysis with the PROCESS Macro (Preacher & Hayes, 2004; Hayes, 2013; Hayes & Preacher, 2014). The three independent factors mood condition, country, and individual action identification level were regressed on the three attitude outcomes blood donation attitudes, behavioral intentions, and relevance of blood donation. The message construal was used as mediator. Based on the preliminary analysis, the sex of the participants was added to the model as covariate. The model is split in three individual models for each outcome for a better overview (cp. Figure 16).

The individual path models show that message construal had a significant direct influence on the attitude outcomes. Relative to more concrete thought listings, participants with more abstract thought listings reported stronger positive attitudes towards blood donation (b = 0.46, SE = 0.13, 95% BCa CI [0.21, 0.72]), more behavioral intention (b = 1.24, SE = 0.23, 95% BCa CI [0.80, 1.69]), and assigned blood donation a higher relevance (b = 0.91, SE = 0.22, 95% BCa CI [0.48, 1.35]).[32] According to bias corrected bootstrap CIs, these effects were different from zero and therefore H5 is supported. The sex of the participants had a moderate effect on two attitude outcomes. Relative to the male participants, female participants showed significantly less positive attitudes towards blood donation (b = −0.33, SE = 0.15, 95% BCa CI [−0.63, −0.03]) and marginally non-significant, less behavioral intention (b = −0.51, SE = 0.27, 95% BCa CI [−1.03 ,0.02]). The mood manipulation indirectly influenced attitudes (b = 0.07, SE = 0.04, 95% BCa CI [0.01, 0.18]), behavioral intentions (b = 0.18, SE = 0.11 95% BCa CI [−0.01, 0.42]), and the reported relevance of blood donation (b = 0.14, SE = 0.09, 95% BCa CI [0.01, 0.38]) through the participants' message construal.

On average and relative to the negative mood condition, participants in the positive mood condition showed 0.1 units more positive attitudes towards blood donation, reported 0.2 units more intent to donate blood, and assigned blood donation 0.1 units more relevance as a result of the measured mental construal.[33] The bias corrected CIs suggest that these small indirect effects are different from zero (except for

[32] All 95% Confidence intervals reported in section 7.2.4 and section 7.2.5 were bootstrapped from 10,000 samples, unless noted otherwise.

[33] All outcomes were measured on a 7-point Likert scale. Because of the dichotomous nature of the factor mood condition, the indirect effect can be understood as mean difference between the negative and positive mood group.

behavioral intentions) and thus H5b is partially supported. There was no evidence that the mood condition had any direct effect on these attitude outcomes (cp. Figure 16).

Secondly, the individual difference factor was treated as independent variable in this model, as hypothesized in H5c. There was no indirect effect of the participants' individual difference on their blood donation attitudes (b = 0.003, SE = 0.004, 95% BCa CI [−0.01, 0.01]), behavioral intentions (b = 0.01, SE = 0.01, 95% BCa CI [−0.01, 0.04]), and the reported relevance of blood donation (b = 0.01, SE = 0.01, 95% BCa CI [−0.01, 0.03]) through message construal. The data does not confirm H5c. Therefore, the corresponding null-hypothesis, that there is no indirect effect of individual action identification tendency through mental construal, is accepted. A direct influence of the individual difference factor on the blood donation attitudes and behavioral intentions was significant.

The country of the participants was the last factor of interest (H5d). The indirect effect of the participants' cultural background, through the message construal, on their blood donation attitudes (b = 0.06, SE = 0.04, 95% BCa CI [−0.01, 0.15]), behavioral intentions (b = 0.18, SE = 0.11, 95% BCa CI [−0.01, 0.41]), and the reported relevance of blood donation (b = 0.11, SE = 0.08, 95% BCa CI [−0.01, 0.29]) resemble the hypothesized mean differences between the countries due to participants' construal.

Relative to the participants from the U.S., the German participants scored on a 7-point Likert scale on average 0.1 units higher in their positive attitudes towards blood donation, 0.2 units higher in positive behavioral intention to donate blood, and 0.1 units higher in the relevance of blood donation. The 95% bias corrected CIs all marginally included 0. Therefore, H5d is not supported based on this data set. Additionally, there was evidence that the participants' country had a direct effect on the attitudes towards blood donation and its relevance. Here, participants from Germany showed significantly more positive attitudes and reported higher relevance of blood donation than U.S.-participants.

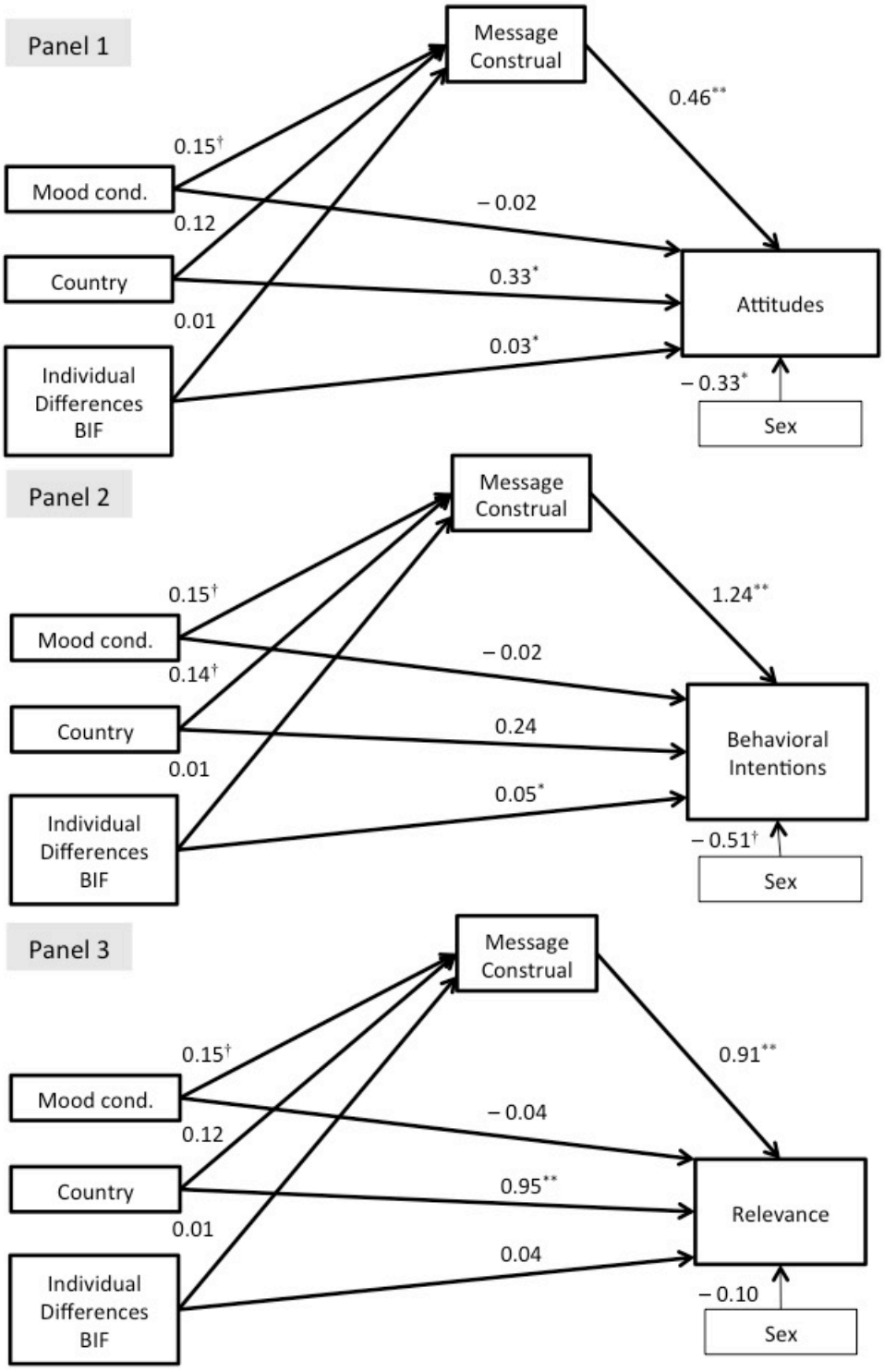

Figure 16
Ordinary least square path models for the influence of mood condition, country, and individual action identification on blood donation attitudes, behavioral intentions and relevance through construal level mind-set. Panel 1: $n = 170$, $F(5,164) = 7.45$, $p < .05$, $R^2 = .18$; Panel 2: $n = 164$, $F(5,158) = 9.29$, $p < .05$, $R^2 = .23$; Panel 3: $n = 170$, $F(5,165) = 9.12$, $p < .05$, $R^2 = .22$; $^{\dagger}p < .10$; $^{*}p < .05$, $^{**}p < .01$.

7.2.5 Psychological distance outcomes.

Hypothesis 6c predicted that individuals who construe mediated health messages in an abstract construal mind-set, judge likelihoods concerning this health topic as lower than individuals in a concrete construal level mind-set. Likelihood judgments are a special case of psychological distance (Wakslak et al., 2006). In an experimental test, this translates to a mean difference between the mood conditions and the countries, so that positive mood or participants from more collectivistic countries respectively estimate the likelihood of blood donation as less likely (thus abstract) compared to the negative mood condition or individualistic cultural background, because the latter have more concrete mental construals. The influence of the individual action identification tendency is also modeled as independent factor (cp. Figure 17). The hypothesized model resembles the mediation model for the attitudes outcomes and also includes sex as covariate, as the two of the four estimates significantly differ between the sexes.

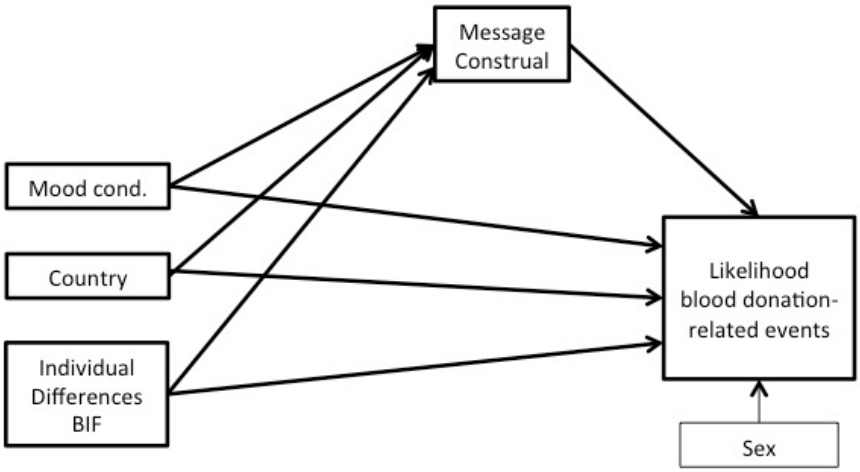

Figure 17
Hypothesized model of the factors mood condition, country, and individual differences in action identification predicting the likelihood of blood donation-related events mediated by the construal level.

An index of all four questions was not reliable ($\alpha = .49$) and the correlations among the items regarding the availability of blood donations and the demand of blood donations were not substantial enough (cp. Table 18). So I will present four separate models, one for each estimate. The individual path models show no strict pattern (cp. Appendix 10.1). Construal level had a significant direct influence on Estimates 1 and 3. Relative to more concrete thought listings, participants with more abstract thought listings reported lower estimates of the percentage of treatments in hospitals that incorporate

blood transfusions (Estimate 1, $b = -7.72$, $SE = 3.84$, 95% BCa CI [−0.13, −15.30]).[34] This equals a decrease in the estimates of approx. 8 % per single unit increase on the 5-point Likert scale rating of message construal in the participants' thought listings. This relationship is as hypothesized, as lower numbers here equal a higher psychological distance.

Similarly, participants with a more abstract construal level reported higher estimates of the percentage of people that are eligible to donate blood in the respective population (Estimate 3, $b = 5.92$, $SE = 2.57$, 95% BCa CI [0.85, 10.98]). The more abstract participants' construal was, the higher they estimated the availability of blood donors. This relationship is confirming the hypothesis, as it resembles that people with more abstract construal level deem the availability of blood donors higher and therefore the problem of blood shortage as psychologically more distant to them personally. For those two models, the bias corrected bootstrap CIs of these effects were different from zero, but they only support the hypothesis partially (H6c). For the two remaining estimates, the relationship was not significant. Again, relative to more concrete thought listings, participants with more abstract thought listings reported higher estimates of the percentage of individuals that will need a blood transfusion at least once throughout their life, $b = -6.09$, $SE = 3.86$, 95% BCa CI [1.54, −13.71] (Estimate 2), and a slightly lower percentage of the respective population that donates blood regularly, $b = -0.34$, $SE = 1.88$, 95% BCa CI [−4.05, 3.38] (Estimate 4). The sex of the participants had only a marginal effect on the first estimate (cp. Figure 18, Appendix 10.1).

The mediation effect was non-significant for all factors in all models (cp. Table 21, Appendix 10.1). Direct effects could only be witnessed for the factor country (cp. Figure 18, Appendix 10.1) on two occasions. They showed, contrary to the hypothesis, that participants from a more collectivistic society (Germany) estimate the number of hospital treatments that include a blood transfusion higher than participants from more an individualistic society (U.S.; Estimate 1). Similarly, participants from Germany also rated the number of people who donate blood on a regular basis (Estimate 4) lower than participants from the U.S. Finally, supportive of the hypothesized direction was the association showing that participants from Germany, as more collectivistic society, estimated the percentage of people eligible to donate blood higher than participants from the U.S. as prototypical individualistic society (Estimate 3).

[34] The negative coefficient is due to the reverse worded item. It can be interpreted that people estimated more hospital procedures to include blood transfusions.

Overall, the hypothesis that message construal affects psychological distance estimates cannot be supported.

7.3 Discussion

The construal level mind-set refers to the construction effort of making a mental image of the subjective reality. The aim of the presented study was to a) test the contribution of mood, cultural, and individual differences as factors that influence construal level mind-set and b) test the influence of the construal level mind-set during exposure to a persuasive blood donation message on post-exposure attitudes and social judgment concerning a public health issue. As in the first study, I adopted a situated cognition perspective that assumes that attitudes and social judgments are based on the mental representations people have of a thing and that come to mind in the moment of judgment (Schwarz, 2009). From this perspective, the overall question was not to what extent the message or previous attitudes influence judgments, but how situational, individual, and cultural factors can explain the mental construal of a mediated message and how consequent attitudes and judgments change as a result of these representations.

7.3.1 Implications for the factors of message construal.

By and large, the central findings are consistent with the hypothesized model (cp. Figure 13). The data demonstrated a positive influence of participants' mood on their mental representation of the health message (H1b). This adds further empirical support to the mood-as-information approach (Schwarz, 1990) and mood-as-general-knowledge model (Bless, 2001), assuming that positive mood leads individuals to process information more abstract. Specifically, the present study adds to this line of research an application within a media effects paradigm, adding an uncontrolled target media influence. In the present case, this was a text based persuasive message, that itself probably exerted an influence on the construal. Nonetheless, the manipulation of participants' mood still yielded a significant impact on the construal of the message.

Furthermore, I assumed, in agreement with cultural comparisons by Hofstede (2001) and assumptions lend by research on self-construal (Markus & Kitayama, 1991) and holistic/analytical thinking style (Nisbett et al., 2001), that the German sample would show more abstract construal of the blood donation message than participants from the United States of America based on their differences on the collectivism-individualism spectrum. According to this theorizing, collectivistic cultures tend to focus stronger on context and higher-order influences. In contrast, individual cultures

concentrate less on the associations between context and actions or objects, and attribute much behavior to lower-order influences (i.e., dispositionism) rather than higher-order circumstances. These conceptual foci would influence the way participants construe new information. Mean differences between the two samples were in the hypothesized direction. Corresponding with previous findings, the culture considered more collectivistic (Germany) does in fact display slightly more abstract message construal than the culture that is generally considered more individualistic (U.S.). The main effect of the country on the level of construal in participants' mental representations was also supported by a trend in the data (cp. Figure 15). Support for Hypothesis 3 (the main effect of the country) was partially detected for the desirability and idealism sub-dimensions of message construal.

Although the differences between the countries were small, they support my earlier claim (cp. Section 4.3) that cross-cultural comparisons need to integrate research of finer, less extreme cultural opposites. Extreme differences are monopolizing the research literature, for example comparisons between the U.S. and Japan, as they promise strong differences in self-construal and collectivism (Hofstede, 2001; Miyamoto, Knoepfler, Ishii, & Ji, 2013). But partially contradicting evidence to the notion that collectivism leads to holistic processing, whereas individualism to more analytic processing (Marquez & Ellwanger, 2014) would possibly gain new insights when considering less extreme cultural differences.

The study at hand adds to this literature in two critical ways: (1) It compares less extreme cultures on the collectivism/individualism spectrum against each other and (2) it utilizes construal level as framework for the differences in cognitive style. Explanations for the lack of statistical support for the cultural difference hypotheses can also be found. For example, the U.S. campus used for recruiting has a rather diverse portfolio of international students and ethnicities. This might be especially relevant, as a central underlying assumption for a cross-cultural comparison is a homogeneous cultural background within the two country samples. From domestic students on this campus, 18 % identified as Asian and 23 % were international students. Among the international students, China and India were by far the most common countries of citizenship, followed directly by South Korea and Taiwan.[35] Although these university wide statistics possibly are not distributed evenly across all disciplines, the convenience

[35] Numbers based on the 2014 statistics published by the school, retrieved on September 24th, 2015 http://about.usc.edu/facts/.

sample from the U.S. might not be fully representative of a traditional, individualistic U.S. culture.

Finally, the individual differences as conceptualized by Action Identification Theory had no impact on the construal level in participants' thought listings, contrary to my hypothesis. Yet, it was associated with the cultural background of the participants. As expected, participants from Germany, whom I conceptualized with more abstract self-construal and holistic thinking style, showed more abstract action identification compared to participants from the United States. In Section 4.3 on cultural differences, I have argued that cultural differences cannot be seen as the sum of individual difference. However, since no support for the initial hypothesis was found, the possibility could be explored. The array of culturally embedded differences (self-construal and holistic versus analytical thinking style) was not measured, but it could be argued that these differences could in fact present as a difference in abstract or concrete action identification. This was assessed in the data, but it showed that there was no influence of the country on overall message construal through the action identification level.[36] This null finding suggests that, in fact, action identification and message construal are conceptually independent, with the former seemingly only applicable to actions and behaviors. In contrast, construal level with the definition that I adopted here, assumes that all things—actions, inanimate and animate objects, events or ideas—can be construed abstractly or concretely. Looking at the individual dimensions of message construal, this notion is further supported, because the two countries specifically differ in terms of their desirability and idealism, but not on the self-regulatory focus dimension. Also, the self-regulatory focus dimension was conceptually based on Action Identification Theory and thus they should have correlated, but the two concepts had no association ($r = -.20$, $p > .05$). As a result, further research should pay attention to these dimensions, in particular, to see if they are actually part of the construal construct.

Furthermore, the fact that the individual dimensions of message construal hardly show any meaningful individual differences between positive and negative mood groups and between the countries, but the index of all dimensions does, supports that the measurement as a whole captures various aspects of construal level within the mental representations.

[36] ($b = 0.01$, $SE = 0.01$, 95% BCa CI [–1.54, 13.71]).

7.3.2 Implications of the effects from message construal on attitude and judgment.

The second aim of this study was to test the influence of the construal level mind-set during exposure to a persuasive blood donation message on post-exposure attitudes and social judgment concerning this public health issue. As argued previously, abstract mental representations were expected to relate to more abstract evaluation categories like morals, ideologies, and higher-order attitudes (Fujita, Trope, et al., 2006; Vallacher & Wegner, 2012) and thus result in more positive attitudes toward blood donation. Therefore, I predicted that construal level mind-set would affect attitudes about blood donations (H5). The model (cp. Figure 16) strongly supported this hypothesis, showing that participants' attitudes, behavioral intention, and relevance increased the more abstractly they construed the message. Most strikingly, pre-exposure mood influenced how positive and relevant participants perceived blood donation and this was in part due to the message construal level (H5b). The country also influenced how positive and relevant participants considered blood donation, and a trend emerged from the data suggesting that this could also be in part be attributed to the construal level applied (H5d).[37] These results contribute significantly to the field of both construal level research and media effects. They demonstrate that the phenomena of abstract thinking influences the processing of mediated health messages as well as the related attitudes.

As such these findings suggest complementary ways to think about persuasive effects in mass media, by more intensely investigating not simply how attitudes and mental representations are activated, but kind of mental representations are activated.

The direct effect of the country on participants' attitudes was statistically highly significant, with the exception of behavioral intentions. Participants from Germany had more positive blood donation attitudes, higher behavioral intention to donate blood within the next 12 months, and attributed more relevance to blood donation than participants from the U.S. As the applied message construal level only in part explains these effects, the country differences must also depend on other sample differences. One demographic difference between the samples was the age of participants. The German subsample was exactly 1.07 years older than the U.S. participants, which was considered in the models. Beside the cultural variation that was assumed, the recruited campuses in Germany and the U.S. could systematically differ in social background

[37] The indirect effect of country through message construal missed the significance level of .05 slightly and included 0 in the confidence interval.

variables, particularly, the U.S. campus was a large private university in California, suggesting higher socio-economic status than most public universities in Germany. Such social differences could be one source of variance between the two country samples and could easily be considered in future studies.

Table 18 shows that only the demand items correlate moderately positive with one another. It was also expected the two items pertaining to the participants' country state of blood donors and to the question of availability, would be related. Already a missing internal consistency (Cronbach's $\alpha = .49$) was a hint that the items are possibly very different in their perceived difficulty and underlying construct.

An alternative explanation for the lack of confirmatory findings for the hypothesis claiming that abstract construal would lead to more psychological distance (H6c) is that the items actually triggered other frames of references for each participant. I expected the most likely frame for participants would be the notion of blood shortage when reading a blood donation call. In this expected case, the more severe and often blood donation shortage occurs, the closer it should appear to the individuals, because it is more likely to happen to them. It follows from this logic that if participants estimate more people are actually donating blood, the issue is less close to them, because they are less likely to experience blood shortage. The reverse would be true for those participants who estimate fewer people donate blood on a regular basis. However, the questions about how many people donate blood or are eligible to do so could have been interpreted using a different frame. That is, the more people are eligible the more likely oneself is also eligible. This reference frame would ascertain psychological proximity to the issue rather than distance.

7.3.3 Summary.

The results of this study give first preliminary insights to the role the applied construal level in mediated message processing has on post-exposure attitudes. They also demonstrate how situational factors, such as mood, can change attitude and judgments in persuasive media, because environmental factors can invoke crucial processing differences. Abstract thinking and concrete thinking ultimately emphasize different judgment principles. Although mood is just one possible influence and the cultural difference assumed in this study is merely theoretical rather than actually a measured one, the study significantly contributes to the research on media construal and its effects on attitudes. While first of all, the results and the measurement need validation, further down the road other possible situational factors could be considered,

that are specific to the media use situation (more on this in the General Discussion in Chapter 8)

Finally, traditional media effects research can teach a lot about how fast, deep, or easy people process mediated messages, but they have invested little thought into how abstract or concrete people construe a message. The present study introduces a new way of assessing abstract and concrete mental representations in thought listings, overcoming the narrow application of the linguistic category model (Coenen et al., 2006) as measurement of abstraction in mainly action related thoughts. It furthermore extends a dichotomous semantic rating of thought-listings as abstract or concrete (Hong & Lee, 2010). Through these innovations, the study contributes methodologically to the field by introducing a multidimensional semantic measurement of abstract or concrete thinking about mediated messages that works along theoretically defined sub-dimensions of mental construal. This advances dichotomous coding schemes by systematically considering possible manifestations of abstract construal.

7.4 Limitations

First of all, possible limitations of this study concern the methodological conceptualization. As mentioned previously, the cultural difference was operationalized through two country samples. There are numerous possible confounds between these countries that could account for the rather small effects found. For example, differences in the socioeconomic background between students of the private U.S.-university and the public German university can possibly account for variance between the samples in terms of their abstract and concrete thinking styles as well as their attitudes towards blood donation. Future research should elaborate on these differences by assessing self-construal and other cross-cultural comparisons could help to establish the limits of the cultural influence on message processing. Furthermore, possible concerns exist about the used measurements. I introduced a new ad hoc measure for construal level conveyed in the thought listings. Further elaboration of the measurement could go two ways: On the one hand, validating research could test whether all six dimensions (i.e., valence, favorability, ego-centrality, idealism, desirability, and self-regulatory focus) are actually central. For example, the present study has given some instances to believe that self-regulatory focus might be not central in assessing attitudes. On the other hand, an extension of this measurement could be achieved including other observable manifestations of abstract or concrete construal that can be detected in open thought listings.

In addition, the measurement of probability as psychological distance also consisted of ad hoc items. The affordance to estimate general percentages of people or people in their own country must have been rather high, leaving the items open to measurement error. As discussed before, the items proofed furthermore unfit because they had at least two very opposing interpretations. It remains open whether psychological distance, including temporal, local, social, and hypothetical distance, can actually be theorized to latent constructs like ideas and issues, rather than events, people, and manifest objects.

Throughout the presented, study power is a likely problem, especially to validate indirect effects. Yet, given the new measurements and the uncommon design that included not just a manipulation message but also a target message, an a priori power analysis was not practical. Lastly, the use of a student sample is a potential limitation and calls the already small effects and trends displayed in this study into question on the population level. Especially given the interest in cultural differences of the students, it needs to be critically noted that this study mostly assessed an urban academic class.

8 General Discussion and Outlook

8.1 Summary of Empirical Findings

The present research project was designed to investigate the effects of situated construal of mediated health messages on health-related attitudes and knowledge formation. It was hypothesized that the abstract or concrete construal of the mediated health information would affect the mental representation of the issues and with that the resulting attitudes and behavioral intentions. Three factors were singled out, which were expected to influence how the media user processes new information: Situated factors such as mood or construal level mind-set directly, individual propensity for either abstract or concrete construal, and cultural differences. Two experiments were conducted along testing different determinants and messages.

The hypothesized effect of message construal was demonstrated in only one of the two studies. The second study showed that mood did affect message construal of a simple, persuasive blood donation appeal in the predicted way, so that a more positive mood led people to a more abstract mental representation and a negative mood to less abstract representations respectively. This construal change did impact the attitudes towards blood donation mostly as projected. Abstract mental construal was related to more positive attitudes and concrete construal was related to less positive attitudes. In this study, the theoretically established mechanism of message construal partially mediated the effect of mood on attitude outcomes.

The first study only produced marginally significant effects in a correlational model, signaling that the proposed influence of message construal was reversed to the expected relationship. The abstract construal of a 15-minute long documentary about organ donation led to less positive attitudes about organ donation, compared to a more concrete message construal. Importantly, this study did branch out to connect mental construal to other aspects of the specific case of mediated health messages and opened up some interesting new research areas.

A construct of interest was the media user's naïve judgment of the media content as abstract or concrete and how this relates to the theoretically guided assessment of abstraction in mental representations. A small correlation was found between the message construal and the naïve judgment, lending some clues as to what message components actually lead to abstract or concrete construal. A second aspect was the narratively of the medium and the narrative experience of the users. Typically, health information is often not presented in a factual manner, but is narrative in nature (e.g., in

documentaries that follow patients and doctors, or fictional or non-fictional narrations of individual health histories). As would be expected, the general assumption that stronger narrative involvement has a positive effect on the attitudes about the health issue was supported by the first study. Abstract construal scores as well as higher subjective ratings of abstractness were negatively related to involvement, suggesting that the influence of construal level on evaluations and attitudes is subordinate to its possible influence on involvement. The narrativity of the first target message compared to the non-narrative target message was an important structural difference between the two studies. Only in the non-narrative study trends were found confirming the posed positive influence of abstract thinking on attitudes.

8.2 Advancements and Pitfalls in the Measurement of Construal Level

The measurement of message construal was advanced in the second study, because it used a theoretically deduced scoring method to categorize the thoughts gathered by the thought-listing technique. In the first study, the domain specificity of construal was problematic for the measurement of construal. Many existing instruments do well in identifying abstraction of objects (Isen & Daubman, 1984; Amit et al., 2009) or actions (Vallacher & Wegner, 1987; Freitas et al., 2004; A. E. Clark & Semin, 2008), yet none seem to go beyond. Many published studies skip the step of measuring construal level as mediating variable all together; relying on previous work to claim that their underlying process is a shift of construal level. Those studies concentrate on manipulating factors that are known to change construal level and measure their outcomes of interest (e.g., Eyal et al., 2008; Ellithorpe et al., 2015). Of course, it is not always practical to measure construal. But to substantiate the influence construal level differences can have in a media setting, a control of the construal level that actually occurred, would help to judge the magnitude of effects and possible confounds. Therefore, one particular goal was to measure the mental abstraction of the target health messages and assesses it as mediating factor in the predicted relationships. It was assumed that the exposure to health messages would result in more positive attitudes, when they were construed with an abstract construal level mind-set compared to a concrete construal level mind-set.

Both studies conducted made use of the thought-listing technique (Cacioppo, von Hippel, & Ernst, 1997). The first study used the most promising existing instrument that assesses sentences based on the LCM, but it actually turned out to be very limited to the measurement of action abstraction (cp. the discussion of Study 1, Section 6.3). As

a result, the open thought listings in Study 2 were analyzed with a newly developed coding scheme, which infers six dimension of abstract thought (i.e., valence, favorability, desirability, ego-centrality, idealism, self-regulatory focus). It concentrates on well-established cognitive manifestations of abstract and concrete construal. After this first implementation, the measurement definitely needs further testing of its construct validity as well as of its convergent validity. Compared to the linguistic coding scheme it offers more room for interpretation, because the six dimensions have less defined coding rules. Yet, the dimensions allow to cover much more semantic expressions of abstract or concrete thinking. Also, although the dimensions were theoretically derived their construct validity has to be further explored.

In the last consequence the usefulness of open thought listings, as approximation of abstract or concrete construal, should be discussed. While this technique is a post-hoc technique (as are self-reports or implicit measurements), which only measures the mental representation displayed after media consumption, the technique allows to gather a data basis, which can be assessed through many lenses. For example, different coding schemes could be used to relate the level of abstractness with elaboration measures or valence (Cacioppo et al., 1997).

8.3 Construal Level in the Media Use Environment

Generally speaking, even with their shortcomings the two studies do suggest that situated factors seem to have only little influence on the abstract or concrete construal of mediated health information—this could be good news for media producers. Likewise, a particular trait influence on construal also seems to be negligible. Limitations of the individual studies' causal inference and alternative hypotheses are discussed at the end of the individual studies (cp. Sections 6.3 and 7.3). It stands to argue their place in media and communication research.

8.3.1 Determinants of construal level in the media use environment.

Construal of information was defined, based on Burgoon et al. (2013), as the cognitive process that identifies central and invariant features of a thing or attitude object (Ledgerwood, Trope, et al., 2010). This definition was chosen, because it particularly does not refer to the domain of the attitude object (i.e., action identification or object abstraction). Two situational factors of construal level were operationalized as experimental manipulations. A procedural-priming task and a mood manipulation were used to influence the message construal.

The first priming task used actions and their abstraction to induce a construal level mind-set. This could have affected construal as a whole, but would mainly exert an effect on actions. Procedural-priming tasks might oppose to the idea to achieve a domain unspecific construal level change, because they have to train the thinking style using examples. In the case of the first study, people had examples of actions to train a more abstract or more concrete construal. Mood as situational factor or distance primes might work better in inducing a general thinking style. Mood is general information to the individual that does not only target actions, people, or objects. Most importantly, based on the mood-and-general-knowledge model I postulated that positive affect facilitates the adoption of a more abstract mental construal while negative affect facilitates the adoption of a more concrete mental construal (Bless & Fiedler, 1995). And in fact, comparing Studies 1 and 2, mood did seem to work much better as manipulation.

I have initially argued that other situational factors, like conversations with friends or previous media use could facilitate a cognitive tuning of abstract or concrete construal. What other situational factors or message factors could be relevant? Pre-exposure mood was investigated in the second study and experimentally distinguished from a target message, to mimic an extraneous factor. The second study produced evidence that mood might work particularly well, because it does not target a specific cognitive abstraction, like some procedural priming tasks. Mood works as impulse to functionally tune cognitions (Bless & Fiedler, 1995). So the question remains how the tuning assumption and the priming paradigm can be relevant in media effects research in the future. Additionally, the theorizing about congruency between cognitive and message construal are considered.

Tuning assumption. In media effects research the question can be extended, asking which factors could facilitate a functional shift of the construal level toward more abstract or concrete representation. Of course, first up would be the fact that the target message itself can be the mood-inducing source. Secondly, the media use situation is inspected, because not only mood could require a functional shift of construal level, so can technical affordances.

Present developments in entertainment theory are congruent to the cognitive tuning assumption (Bless & Fiedler, 1995; Bless, 2001). In the cause of theorizing, why people do enjoy sad movies (sad film paradox, Oliver, 1993), it was repeatedly suggested that sad movies do induce an eudaimonically fulfilling experience, triggering

thinking about one's life, ruminating, "the search for meaning" (Vorderer & Reinecke, 2015), and meaningful existence (Oliver & Raney, 2011). These imply goal- and meaning-oriented thoughts and thus fit the definitions of abstract thinking. Integrating eudaimonia as abstract construal mind-set could possibly lead to a more systematic evaluation of the effects, potentials, and possibly processes triggered by an entertainment experience that is not purely hedonic. The different dimensions that also inspired the multidimensional measurement, I presented in Study 2, could be used to actually conceptualize how the media users weigh idealism, desirability, favorability, valence, and how they view themselves in relation to the topic.

Study 1 also informs this proposed theoretical relationship, in contrasting possible processes and effects linked to rather hedonic entertainment. First, the abstract construal level mind-set did not relate to more positive attitudes, contrary to my proposition. It did, however, relate to less narrative involvement. Secondly, the theorizing of narrative involvement was a combination of constructs (e.g., identification, transportation) that evolved out of a traditionally hedonic entertainment theory. In Study 1, these processes were clearly associated with a concrete construal level mind-set. As in the discussion for Study 1 noted (cp. Section 6.3), a concrete construal level mind-set is also known to foster more vividness of events and persons portrayed, which can enhance involvement. Concrete construal has been theorized also as perceiving things as psychologically closer to the self, a mind-set that possibly eases constructing mental models of, for example, narrative worlds (Green, Brock, & Kaufman, 2004).

Yet, from this study alone it remains unclear what is cause and what is effect. From a tuning perspective it would be reasonable to expect that narrative involvement actually causes a more concrete construal level mind-set. Narrative involvement should make, for example, the characters and people of a media message more accessible and, as some theorists claim, set the audience's self into the narrative, moving their self as reference point closer to events and characters (Segal, 1995; Green & Brock, 2002). This would qualify as shifting the psychological distance and thereby the construal level (Trope et al., 2007).

The synthesis of construal level mind-sets with entertainment theory thus could be a new area of research that is open to explore. Investigations to this end are of course complicated by the complexity of the entertainment situation, which is much better defined by a parallelism of eudaimonic and hedonic experiences (Bartsch, Vorderer, Mangold, & Viehoff, 2008), than as a clearly distinguishable process. It is here, were

the situational factors outside the medium itself could come into play again. Possible combinations of situational tuning and the media's presentation could interact. Hence, a congruency assumption could be explored. An abstract construal level mind-set should make the processing of abstract media portrayal more fluent compared to a concrete presentation.

Besides the entertainment process the media use situation is of interest. New research suggests the new-media environment could be one factor. Kazakova et al. (2015) showed that individuals adopted a more concrete action identification when multitasking. Through the wide dispersion of mobile devices the use of second screens during tradition media exposure is just one form of media multitasking currently discussed among the scientific community (Brasel & Gips, 2011; Voorveld & Viswanathan, 2015). From the standpoint of the cognitive tuning assumption inherent to Action Identification Theory (Vallacher & Wegner, 1989) this fits all theoretical expectations (cp. Section 3.1). Media multitasking signifies a more complex situation than simply watching television, because one media source concurrently disrupts the other media source. Per definition, this should at least lead to a more concrete action identification (Vallacher & Wegner, 2012). Combining this theorizing and the first empirical steps from the presented studies, which investigated the influence abstract or concrete construal have on the related attitudes, it would suggest that media multitasking also has the potential to influence how persuasive media affect attitudes and behavioral intentions, because it can alter how people construe mediated information.

Priming. Especially in media and communication research, the medium and the message itself are in the spotlight as influencing factors and can potentially bear many priming cues. From the theoretical literature reviewed for this research semantic priming emerged as one possible cue affecting message construal. Secondly, linguistic cues are likely relevant as well.

Semantic cues. Semantic priming of psychological distance is the central methodology in Construal Level Theory. *Distance primes* have been successful in the past to achieve abstract or concrete examples of objects (Liberman et al., 2002; Förster et al., 2004), and actions alike (Liberman & Trope, 1998; Liberman, Trope, McCrea, et al., 2007), but also used to achieve more abstract (or concrete) evaluations (Eyal et al., 2004; Fujita et al., 2008). Based on the work within the Construal Level Theory framework (cp. Section 3.2), also goal emphasis and result-oriented information should

structurally achieve more abstract mental representation of an action or event compared to information that detail action specifics (e.g., Liberman et al., 2002; Sagristano et al., 2002; Nussbaum et al., 2003; S. L. Clark & Freitas, 2012). Basically, inserting a distance marker on any of the four psychological distance dimensions is domain-neutral. Therefore, it could have a stronger ability to affect construal in general, rather than just the construal of actions. For persuasive communication there has been evidence of congruency effects with distance primes (Fujita et al., 2008). For distant attitude objects, persuasive messages including abstract message cues were more effective than if message cue and psychological distance to the attitude object were mismatched.

For media messages this implies how attitudes and mind-sets could be intentionally steered by using a certain language. Applications have been mainly investigated and discussed in consumer research (Meyers-Levy & Maheswaran, 1992; Fiedler, 2007; Kim, Meng, & Li, 2008; Tsai & McGill, 2011). But especially distance primes could be useful in integrating psychological theory with the long-standing tradition of news values research ("Nachrichtenwerttheorie", Lippmann, 1922; Schulz, 1976). News values (i.e., what makes a news actually news worthy) are perceived very differently across cultures, but are also conceptualized very distinctly between the so-called Western cultures. In Germany, news value research has had a long and eventful tradition of theory development. In the past decade, the effect of news values on the audience's side has been modeled with help from cognitive psychology. It has been established that for the users, news values like proximity are indicators of relevance, influencing attention distribution and recall of the news (Eilders, 1997). Particularly, since Lippmann (1922) proximity has been part of the theorizing in most Western theories of news values. It has taken the form of cultural, personal, political, geographic, or economic proximity (Eilders, 2006). However, Construal Level Theory (Trope & Liberman, 2012) could give valuable insights into how the mental representations is affected by such distance primes. While the summary of news value theory would suggest that more proximity does facilitate more attention and more central processing (Eilders, 2006), Construal Level Theory would add the dimension of abstract and concrete construal. Proximity would be expected to show links to more concrete, pragmatic processing and mental representation. It would be interesting to assess the mental representations for possible biases on the suggested dimensions of abstract and concrete thinking in Study 2 (i.e., valence, favorability, desirability, idealism, ego-centrality, and self-regulatory focus). Another example that also functions as news

value is *novelty*. Novelty frames have been discussed in Construal Level Theory to lead to broader mental categorization and more abstract action identification (Förster et al., 2009, Studies 4a/b and 5a/b).

Similarly, gain or loss framing of messages was indirectly related to more abstract construal. First, stressing aspects like desirability versus feasibility in a message should highlight abstract versus concrete information about an attitude object, based on the Construal Level Theory (Trope et al., 2007). Initial results on processing of gain and loss frames also show the same pattern of congruency effects, as distance primes do (Nan, 2007). Thus, gain and loss frames also represent abstract and concrete message cues and if the situational construal level mind-set is matched, they are processed with more ease.

Finally, pictures are a more concrete communication medium than words. A whole series of experiments showed people to use pictures to communicate with proximal others and words for distant others, mirroring the congruency effects discussed above. Convergent evidence exists for various dimensions of psychological distance (Amit et al., 2009). The match between medium and the distance to the choice option is reportedly more effective in influencing preferences of people. Using the choice of a restaurant, researchers showed participants the picture of ingredients for a recipe versus written recipe instructions and manipulated the distance to choice options (local vs. distant chef) (Amit et al., 2013). Participants in this experiment preferred matching conditions (local chef and picture of recipe; distant chef and written recipe instruction) to the mismatching conditions. This is another example of a congruency effect. It might be worth some more exploration, particularly since visual media[38] have more range than the traditional text media combined (i.e., daily newspapers, journals, books) (Engel & Mai, 2015).

Linguistic cues. Fiedler and Mata (2014) discuss a whole variety of lexical priming effects, how they call linguistic cues. The linguistic category model suggests categories of abstract and concrete language that can be used to measure mental construal (Semin & Fiedler, 1988). Additionally, utilized in tailored messages, those linguistic categories have the potential to cause abstract mental construal. Abstract linguistics use more adjectives and state verbs (i.e., promise, hate, agree), which allow the speaker to convey more high-level information. For example, one study tested the influence of linguistic categories on the perceived truth of a statement. A series of

[38] Excluding the internet.

experiments revealed that concrete language use lead participants to judge statements to be true versus not true when abstract language was used (i.e., linguistic concreteness effect, Hansen & Wänke, 2010). It was shown in two follow-up experiments that the linguistic concreteness effect was specifically pronounced for the readers who were in a concrete construal level mind-set (vs. abstract mind-set).

Congruency effects. The congruency perspective can be found in many of the reviewed literature as underlying assumption. It holds the view that if mind-set and message or object presentation match (e.g., abstract construal level mind-set presented with an abstract target message) cognitive processing happens with ease (Bar-Anan et al., 2006; Bar-Anan, Liberman, Trope, & Algom, 2007; Amit et al., 2009). In comparison, if an abstract mind-set is mismatched with concrete message cues processing is disturbed. Beyond that, seminal evidence also suggests that the persuasive appeal of the message is likely to benefit from a match between construal level mind-set and media presentation (Amit et al., 2013). Again, it has to be noted that these effects have been mainly investigated using non-narrative messages. This questions the environmental validity of the situated construal level effects in the typical media environment.

8.3.2 Narrativity: Nuisance or factor?

In social psychological and basic construal level research, narrative messages are not typically considered. Yet, otherwise in media and communication studies narrative messages are of particular importance and are, in fact, the most realistic and valid example of media persuasion. Study 1 integrates the narrative persuasion framework and the construal level perspective. It yielded interesting results that contrasted the posed relationship between construal level and attitudes. Instead of an abstract construal level, here a more concrete construal level seemed to relate to more positive attitudes. Narrative persuasion likely benefits from a more concrete construal, because, as in the first study, more concrete message construal lead to more narrative involvement and that in turn is known to result in more positive attitudes. In comparison, Study 2 found that for a non-narrative text that concrete construal about a public health topic lead to less positive effects.

To the attentive reader this should strike as a contradiction to the assumption made above. I argued that eudaimonic and hedonic entertainment experiences are possibly treated as general information about the situation's cognitive affordance and

result in a functional tuning of the individual's cognition (cp. Section 8.3.1). It followed that an eudaimonic entertainment experience possibly exerts an abstract thinking style.

These contradicting predictions illustrate the complexity of the entertainment situation. What if the construal level, to actually be transported into a narrative (Green, 2004), has to be rather concrete in order to vividly imagine the narrative world and characters, but the experience of hedonic or eudaimonic pleasure might exert an independent effect on abstract or concrete thinking? Possible pre-exposure manipulations or narrative manipulations would affect the narrative involvement, but the effect the narrative has on attitude outcomes would be independent and mainly be influenced by the eudaimonic or hedonic pleasure derived from the narrative. Therefore, the narrative experience affects whether evaluative associations are drawn with abstract constructs (i.e., moral and normative ideas) or concrete constructs (i.e., individual costs and pragmatic concerns). For persuasion research, this opens up interesting prospects that should allow for research in the future.

8.3.3 Cultivation of beliefs.

For the research of cultivation effects (Gerbner et al., 2002), Construal Level Theory is a possible addition to further systemize contradicting results. Ellithorpe et al. (2015) found in two experiments that a first-order cultivation effect (fact-based judgments) was only detected under concrete construal, but not for abstract construal. Furthermore, in an experiment with a control group the authors found that concrete construal seemed to be a default mind-set of participants. This underlines the trend found in Study 1, when the concrete construal manipulation did not significantly change the mind-set compared to a control group (cp. results in Section 6.2.2). I have argued that the experimental situation as such might be perceived as new and uncommon, and thus a more concrete mind-set would be adopted (Vallacher & Wegner, 2012). It has to be considered, too, that a concrete construal level mind-set would be functional for first-order cultivation judgments, particularly on instances of aggression and violence (a favorite topic of cultivation research). Statistically, the participants of these experiments would not have first-hand experience with violence and aggression to use as exemplars for the required first-order judgments (Gerbner & Gross, 1976). Hence, a reliance on mediated information would seem appropriate (Shrum, 2008). An abstract construal level mind-set would probably lead individuals to put these judgments into perspective and possible elicit thoughts about what they know to be true about the world overall, because abstract construals are associated with more general value judgments (Fujita et

al., 2008). From such an abstract perspective, the relevance of media exemplars of, for example, violence in the media could be reduced. Ellithorpe et al. (2015) argue that an abstract construal level could reduce the relevance of heuristic cues when making first-order judgments.

Furthermore, the construal level perspective is informative for the study of cultivation effects, because of the systematic role of psychological distance the theory has derived. The initial theorizing of the Construal Level Theory suggested that a mind-set change could actually help individuals to process information that are proximal and distant (Liberman & Trope, 2008). Additionally, narrative persuasion research has discussed psychological distance as factor for cultivation effects and attitude change. For instance, Bilandzic (2006) suggests the possibilities of an experiential and a mediated closeness to the narrative content for the media user. Particularly, in judgments about events that are psychologically distant to the media user (e.g., temporally in historic dramas, hypothetically in science fiction, or locally in exotic location in movies) mediated information is often the only source of information (Bilandzic, 2006; Ellithorpe et al., 2015). It is expected that this causes media-biased judgments of reality. Psychological distance ignores how the closeness is established, through media or experience. This could help to actually distinguish between the determinants of attitude change as (a) personal (issue) relevance or (b) transported media use (as the experience to transcend psychological distance into a narrative world). It might be helpful for basic theory development that wants to entangle the role of mediated proximity from personal relevance.

8.4 Future Directions for Research of Construal Level in Media and Communication Studies

Media's single most fascinating prospect is that it disengages people from their current and immediate situation. Under these circumstances, the proposed superiority of the situation (Schwarz, 2012) might fade in the background. While individual hypotheses might actually be of value for the study of individual media effects (i.e., cognitive tuning assumption), others might be less suited. Cognitive construal level mind-sets are just one instance that is easily changed by media messages. Much of social psychology's research needs to be reevaluated from a media research perspective. The tightly controlled experimental situation and target objects or messages are not transferable to an ecologically valid media use situations.

However, the perspective of abstract and concrete thinking styles and their effects on attitudes and behaviors taken here should still animate future research in media and communication research. A myriad of media inherent features are imaginable, that affect the construal level. Previous research and partial results from the present research allow assuming that there is a sizable influence of abstract and concrete representation of health information on the attitudes and behavioral intentions. I have discussed the theoretical implications that can be drawn from the findings and the theorizing presented. The theorizing on manifold media use and effect phenomena could profit from an exploration along the lines of Construal Level Theory.

One possible application is in mediated messages advocating social change and entertainment education. A eudaimonic entertainment experience could make media users more prone to consider the issue in the "bigger picture" and evaluate calls for action or behavioral change according to their idealism and desirability, drawing their attention away from personal and social costs.

Distance primes are interesting in the area of environmental communication. Here, often the messages are fact-based and not narrative in their format. This is important, because as I have discussed, for narrative formats the causal chains might be rather different compared to fact-based information. However, for most of the Western world the consequences of climate change (as they are, at the time of writing, discussed at the 21st United Nations Framework Convention on Climate Change in Paris, France) are distant on more than on level of the psychological distance construct discussed in this work (i.e., locally, temporally, hypothetically).[39] Here, messages could utilize the knowledge from Construal Level Theory (Trope et al., 2007) to try to shift construal level to a more concrete level. A concrete construal level might foster problem solving (Förster et al., 2004) and pragmatism (Kivetz & Tyler, 2007) when considering climate change messages.

Health communication, on the other side, has different matters to persuade the public about. Some health concerns are rather concrete and common enough to have a certain proximity (e.g., cancer, the flu). Other health matters are uncommon (e.g., organ donations) or only confined to late life stages (e.g., Alzheimer's) and are therefore distant to a majority of individuals. To utilize the merits of Construal Level Theory, it seems crucial to assess the cause the message should educate and inform about elaborately. The research at hand looked specifically at health causes where individual

[39] The United Nations Framework Convention on Climate Change was held in Paris from November, 30th to December 11th, 2015.

health decisions have consequences for public health. For these messages, individual media users should be made aware that their decisions have implications beyond their personal health. Research on more individual health concerns has discussed the advantages of gain and loss framing repeatedly (Meyerowitz & Chaiken, 1987). If initial empirical evidence holds that gain frames induce more abstract construal, whereas loss frames induce more concrete construal (Nan, 2007), the prospect of these theoretical lines combined could help reevaluate some of the contradicting evidence about gain and loss framing. The effects of gain and loss frames seem to be dependent on the kind of behavior that is targeted in the persuasive messages.

Likewise, moral messages and immoral perpetrators are a typical topic in both media entertainment and news. Theories on the individual moral domain salience and the scrutiny of moral messages in the media (Tamborini, 2011) are presently questioning how people make moral judgments. The salience of moral domains is one issue that could be further explained with the help of Construal Level Theory. Lester and Weber (2015) found that the situational cognitive construal level influenced how harsh people judge moral violations on the different domains. The authors predict that an abstract construal makes idealism and morality more relevant as basis for a judgment, whereas concrete construals are more sensitive to context factors. The study by Lester and Weber (2015) supports a majority of findings from the Construal Level Theory framework adding the interesting aspect that the link between construal level and moral judgment remained stable across different moral domains (cp. Section 3.3.2). The overarching critique that I have issued before, however, applies here as well. Their study used a design, where individuals judge a film synopsis and not actual media or entertainment content. A more ecologically valid assumption would be: The extent of narrative involvement relates to the adopted construal level, because based on the results from Study 1, a more concrete construal level mind-set would help participants to ‘get into’ the story or, as Liberman and Trope (2008) would put it, help traverse the psychological distance between the self and the narrative world. One of the entertainment processes that actually enhance narrative involvement is identification (Cohen, 2001) or empathy (Zillmann, 2006a). From this logic, it could be derived that the more media users identify with the characters or are empathetic, the more they get involved with the story. This could result in a more concrete construal level mind-set at the time of media consumption. In the case of media use, the immoral conduct is not acted out by the media user, but a character stands in as perpetrator. Particularly, anti-

heroes and complex characters have moral flaws, which need to be justified by the audience in order to justify their admiration and liking of these characters. Moral justification is eased when considering circumstance and environmental factors, usually associated with concrete construal levels.

Finally, tailoring language on the lexical level is a very subtle way to influence the message construal (cp. Section 8.3.1). Methodologically, these findings also bear potential that is worth considering. Questionnaire language could, according to the construal level theorizing, affect whether the individuals draw more abstract or more concrete associations. One example of tasks that are prone to the influence of construal levels is recall tasks. Free recall is highly dependent on the construal level at the time of recall, and evidence suggests this is independent of the time since the information was established (Kyung, Menon, & Trope, 2010).

In the introduction I referenced stereotypes and exemplars as specific examples of abstract and concrete categories, which have been considered in media and communication research. The presented work introduces the concept of an abstract (vs. concrete) thinking style to the area of media psychology, that offer a more general approach to mental representations, but with subliminal evaluative biases. For the processing of the health dossier on vaccination that I mentioned in the introduction, the presented work substantiates how a circumstantial mood or construal level mind-set, can affect the consequent knowledge and attitudes. Participants, who construe such a dossier more abstractly, likely remember abstract and primary information better. With abstract construal especially the desirability and ideological evaluation of the suggested information are activated. However, differences in favorability and valence associated with the mental representation of the message were also results of the construal level mind-set change. It was shown that the predicted effects of Construal Level Theory, only appear for factual information, but that they might be essentially different if the audience was to be persuaded by a narrative format. With the open questions and possible theoretical and methodological paths that could be taken, the study leaves much research to be done.

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10 Appendices

10.1 Study 2 Additional Analysis

Table 21
Indirect Effects of Factors on Estimates Through Construal and Model Specifics

	Consequent			
Antecedent	*b*	*SE*	*BCa 95% CI [LL,UL]*	
		(Estimate 1)		
Mood Condition	1.16	0.88	−0.16	3.22
Country	0.93	0.78	−0.10	3.17
Individual Difference (BIF)	0.06	0.09	−0.06	0.31
Model	$R^2 = .07$, $F(5,160) = 2.28$, $p < .05$			
		(Estimate 2)		
Mood Condition	0.91	0.74	−0.21	2.64
Country	0.73	0.70	−0.11	2.80
Individual Difference (BIF)	0.05	0.08	−0.04	0.28
Model	$R^2 = .05$, $F(5,160) = 1.82$, $p > .05$			
		(Estimate 3)		
Mood Condition	0.89	0.72	0.00	0.15
Country	0.71	0.55	−0.05	2.26
Individual Difference (BIF)	0.05	0.06	−0.05	0.22
Model	$R^2 = .07$, $F(5,159) = 2.98$, $p < .05$			
		(Estimate 4)		
Mood Condition	−0.05	0.28	−0.69	0.52
Country	−0.04	0.25	−0.79	0.31
Individual Difference (BIF)	−0.00	0.02	–0.08	0.03
Model	$R^2 = .05$, $F(5,159) = 1.80$, $p > .05$			

Note. Estimate 1 “What percentage of treatments in hospitals incorporates blood transfusions?”, Estimate 2 “What percentage of individuals will need a blood transfusion at least once throughout their life?”, Estimate 3 “What percentage of the U.S. [German] population is eligible to donate blood?”, Estimate 4 “What percentage of the U.S. [German] population donates blood on a regular basis?”.

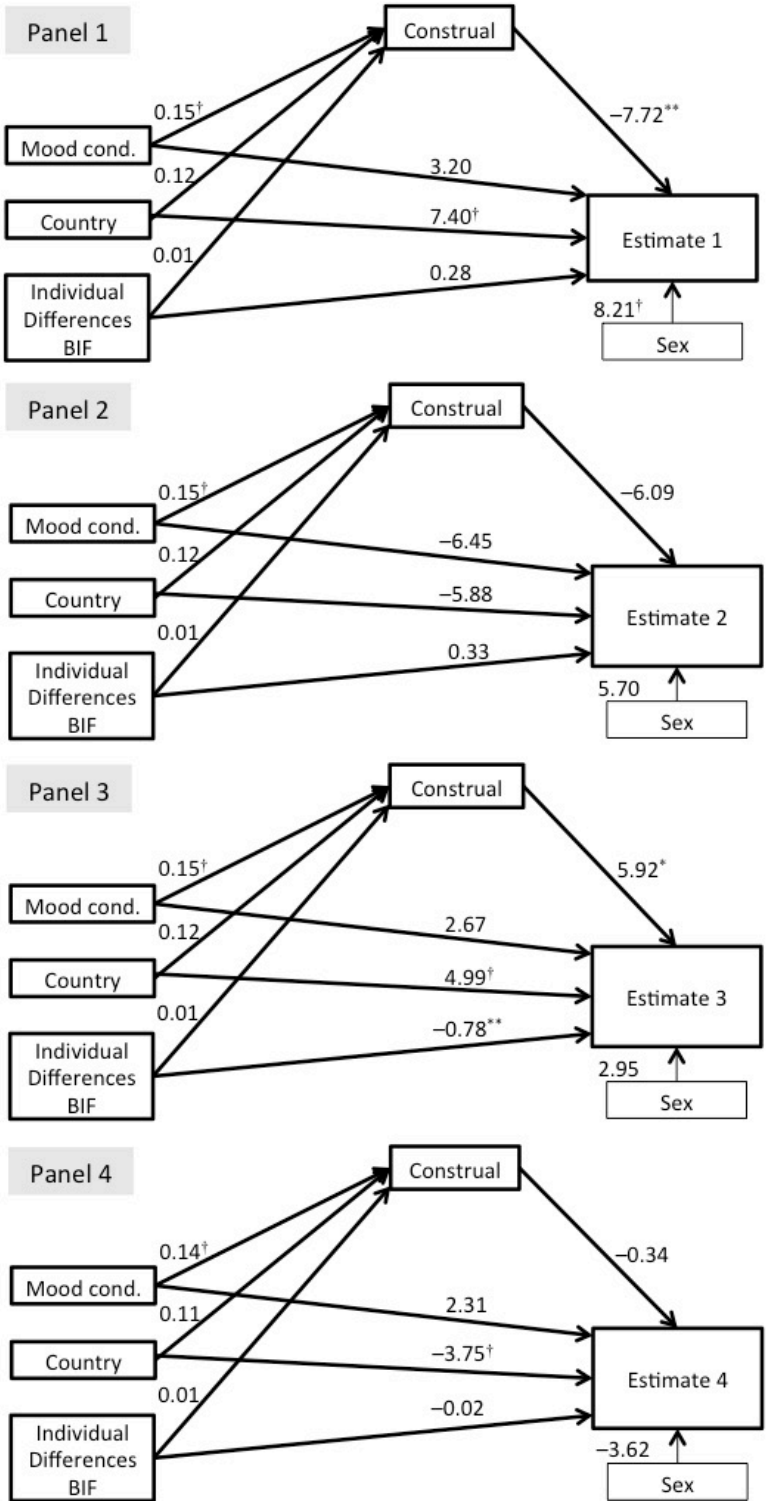


Figure 18
Ordinary least square path models for the influence of mood condition, country, and individual action identification on estimates of blood donation related events through construal level mind-set. Panel 1: $n = 166$, $F(5,160) = 2.28$, $p < .05$, $R^2 = .07$; Panel 2: $n = 166$, $F(5,160) = 1.82$, $p > .05$, $R^2 = .05$; Panel 3: $n = 165$, $F(5,159) = 3.52$, $p < .05$, $R^2 = .10$; Panel 4: $n = 165$, $F(5,160) = 1.79$, $p > .05$, $R^2 = .05$; $^{\dagger}p < .10$; $^{*}p < .05$, $^{**}p < .01$.

10.2 Study 1 Material German Originals

10.2.1 Informed consent form

Information zur Teilnahme an den Studien am Lehrstuhl MKW III

Seminarerhebung

Informationen

Liebe Teilnehmerin, lieber Teilnehmer,

Vielen Dank für Ihr Interesse, an dieser Studie teilzunehmen. Bitte lesen Sie diese Informationen aufmerksam und bestätigen Sie dies.
Die Inhalte der Studie, die wir als Teil unseres Seminars durchführen erfolgt freiwillig und ist mit keinen Risiken verbunden. Insbesondere werden den Teilnehmerinnen und Teilnehmern keine körperlichen oder seelischen Schäden zugefügt. Es steht Ihnen jedoch jederzeit frei, Ihre Teilnahme an der Studie zurückzuziehen oder abzubrechen.

Die Daten dieser Studie werden in vollständig anonymisierter Form erfasst. Nach Beendigung der Studie können Sie weitere Informationen über die Hintergründe und Ziele der Studie sowie den Verwendungszweck der Daten erhalten. In einigen Fällen können die weiterführenden Informationen zur Studie erst nach Abschluss der Erhebung gegeben werden.

Für die Teilnahme an der Verlosung von 10 Amazon.de-Gutscheinen und den Wunsch weiterführende Informationen zu erhalten, tragen Sie sich bitte mit Ihrer E-Mailadresse ein.

Bitte behandeln Sie die Details hinsichtlich der Inhalte und des Verlaufs der Studie vertraulich und geben Sie diese besonders nicht an andere potentielle Teilnehmer weiter. Es ist wichtig, dass die Teilnehmer kein Vorwissen über die Studie haben, damit die Ergebnisse nicht verfälscht werden.

Einverständniserklärung

Wenn Sie:

- Die Informationen zur Studie oben gelesen haben.
- Sie die Möglichkeit hatten, Fragen zu stellen.
- Zufriedenstellende Antworten erhalten haben.
- Verstanden haben, dass Sie die Freiheit haben, die Studie jederzeit abzubrechen, ohne die Angabe von Gründen.

Unterzeichnen Sie bitte hier, um deutlich zu machen, dass Sie einverstanden sind an dieser Studie teilzunehmen.

Bitte unterschreiben: _____
Datum: _____

Name in Druckbuchstaben: _____

E-Mail Adresse: _____für weiterführende Informationen

O ja, ich möchte an der Verlosung teilnehmen (bitte ankreuzen, wenn zutreffend)

10.2.2 Questionnaire 1

Questionnaire 1 was part of the abstract, concrete, and control 1 conditions.

Herzlich Willkommen.[40]

Wie funktionieren die Fragebögen?

In den meisten Fällen geben wir Ihnen Aussagen vor, die Sie dann auf einer Skala als zutreffend oder unzutreffend einschätzen. Einmal angenommen, die zu beurteilende Aussage lautet „Ich versuche immer, meine Aufgaben gewissenhaft zu erfüllen." und Sie finden, dass diese Aussage eher auf Sie zutrifft, dann markieren Sie bitte die entsprechende Position auf der Antwortskala mit einem Kreuz wie folgt:

	trifft ganz und gar nicht zu	trifft über-wiegend nicht zu	trifft eher nicht zu	trifft eher zu	trifft über-wiegend zu	trifft voll und ganz zu
	1	2	3	4	5	6
Ich versuche immer, meine Aufgaben gewissenhaft zu erfüllen.	☐	☐	☐	✖	☐	☐

Ihre Antwortmöglichkeiten reichen meist von 1 „trifft/stimme ganz und gar nicht zu" bis hin zu 6 „trifft/stimme voll und ganz zu". Vereinzelt erwarten wir auch offene Antworten von Ihnen.
Ansonsten erwarten Sie ein paar Aufgaben, die wir Ihnen an der jeweiligen Stelle erklären.

Viel Spaß!

[40] The Welcome Page was also used for the control 2 condition.

Fragebogen 1

Jeder Mensch verknüpft unterschiedliche Dinge mit einem Wort. Der eine assoziiert mit einem Baum den Wald, ein anderer sieht in einem Baum ein Gewächs. Im folgenden Fragebogen werden Ihnen für jede Tätigkeit zwei Alternative vorgeschlagen. Bitte entscheiden Sie sich intuitiv für die Alternative, die Ihnen am meisten zusagt.

(a) Eine Liste schreiben

☐ Etwas organisieren

☐ Etwas aufschreiben

(b) Lesen

☐ Einzelnen Zeilen folgen

☐ Wissen aneignen

(c) Wäsche waschen

☐ Gerüche aus der Wäsche bekommen

☐ Wäsche in die Waschmaschine stecken

(d) Den Raum ausmessen

☐ Auf die Renovierung vorbereiten

☐ Einen Zollstock verwenden

(e) Schüttelfrost haben

☐ einen heißen Tee kochen

☐ krank fühlen

(f) Einen Organspendeausweis ausfüllen

☐ Menschen helfen

☐ den Namen eintragen

(g) Die Blumen versorgen

☐ Blumen wässern

☐ den Raum schön ausgestalten

(h) Die Türe verschließen

☐ Den Schlüssel im Schloss drehen

☐ Das Haus sichern

(i) Wählen

☐ Die Wahl beeinflussen

☐ Eine Stimme abgeben

(j) Zähne putzen

☐ Die Bürste im Mund bewegen

☐ Karies verhindern

(k) Jemanden begrüßen

☐ Hallo sagen

☐ Freundlich sein

(l) Einer Versuchung widerstehen

☐ „Nein“ sagen

☐ Courage haben

(m) Mit dem Auto reisen

☐ Der Karte folgen

☐ Die Landschaft sehen

(n) Mit einem Kind sprechen

☐ Dem Kind etwas beibringen

☐ Einfach Wörter benutzen

Bitte machen Sie nun mit

Aufgabe 1 weiter.

Control condition – Task 1.

Aufgabe 1

Bitte setzen Sie nun die Kopfhörer auf und starten Sie den Film.
Drücken Sie dafür die Playtaste oder die Leertaste.

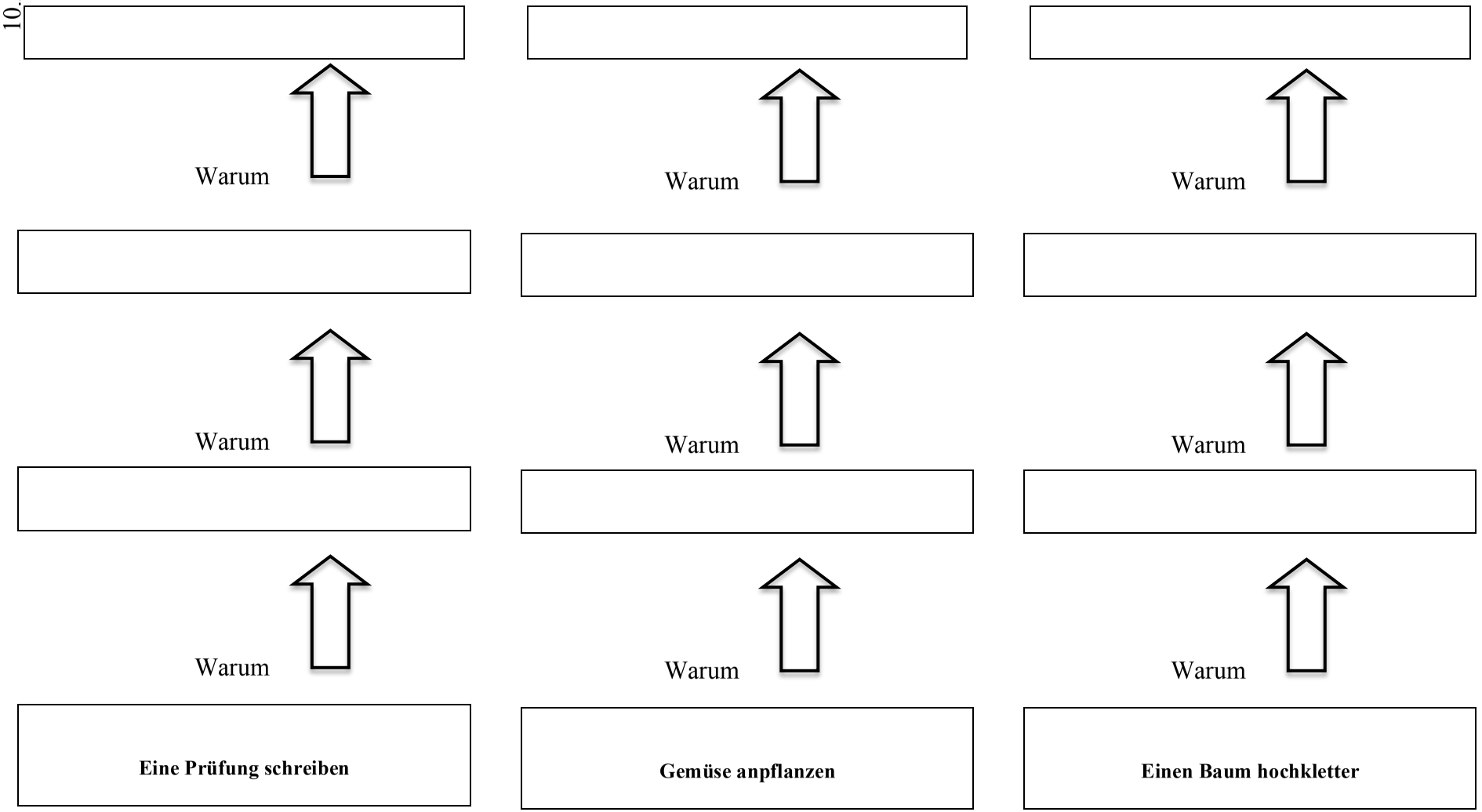
Abstract condition – Task 1.

Aufgabe 1

Für jede Entscheidung im Leben gibt es einen Grund. Man kann meist sogar einer Entscheidung ein übergeordnetes Ziel unterstellen. Heute nehmen Sie als Student/-in an einem Experiment teil. Warum? Vielleicht gehört es zu einer Kursvoraussetzung, vielleicht wurden Sie von einem/-r freundlichen Kommilitonen/-in dazu überredet. Warum lassen Sie sich überreden? Vielleicht weil Sie heute eine gute Tat vollbringen wollten. Warum wollten Sie heute eine gute Tat vollbringen? Vielleicht ist Ihnen gestern ebenfalls geholfen worden.
Die Forschung zeigt, dass eine solche Assoziationskette Menschen hilft, sich Ihre eigenen Ziele zu verdeutlichen.

So erledigen Sie die Aufgabe:
In der folgenden Aufgabe sollen Sie ergründen *warum* Sie tun was Sie tun. Wir testen diese Aufgabe hier in diesem Rahmen für eine spätere Verwendung in einer Studie zum Thema Lebenszufriedenheit.
Für dieses Gedankenexperiment denken Sie bitte über folgenden Zustand nach: „Mental ausgeglichen sein“ und stellen Sie sich die Fragen: „Warum sollte ich mental ausgeglichen sein?“. **Schreiben Sie uns Ihre Antwort in das nächste Kästchen,** z.B. „um meine Work-Life-Balance zu sichern“, und stellen Sie sich wieder die Frage „Warum möchte ich meine Work-Life-Balance sichern?“. Nehmen wir an Sie schreiben die Antwort „um ein glücklicheres Privatleben zu haben“ auf, dann würde Ihre folgende Frage lauten „Warum möchte ich ein glücklicheres Privatleben haben?“. Bitte vervollständigen Sie in dieser Art die Aufgabe zu drei unterschiedlichen Tätigkeiten und füllen Sie alle freien Kästchen aus.

10.2—5


Warum
Warum
Warum
Warum
Warum
Warum
Warum
Warum
Eine Prüfung schreiben
Gemüse anpflanzen
Einen Baum hochkletter

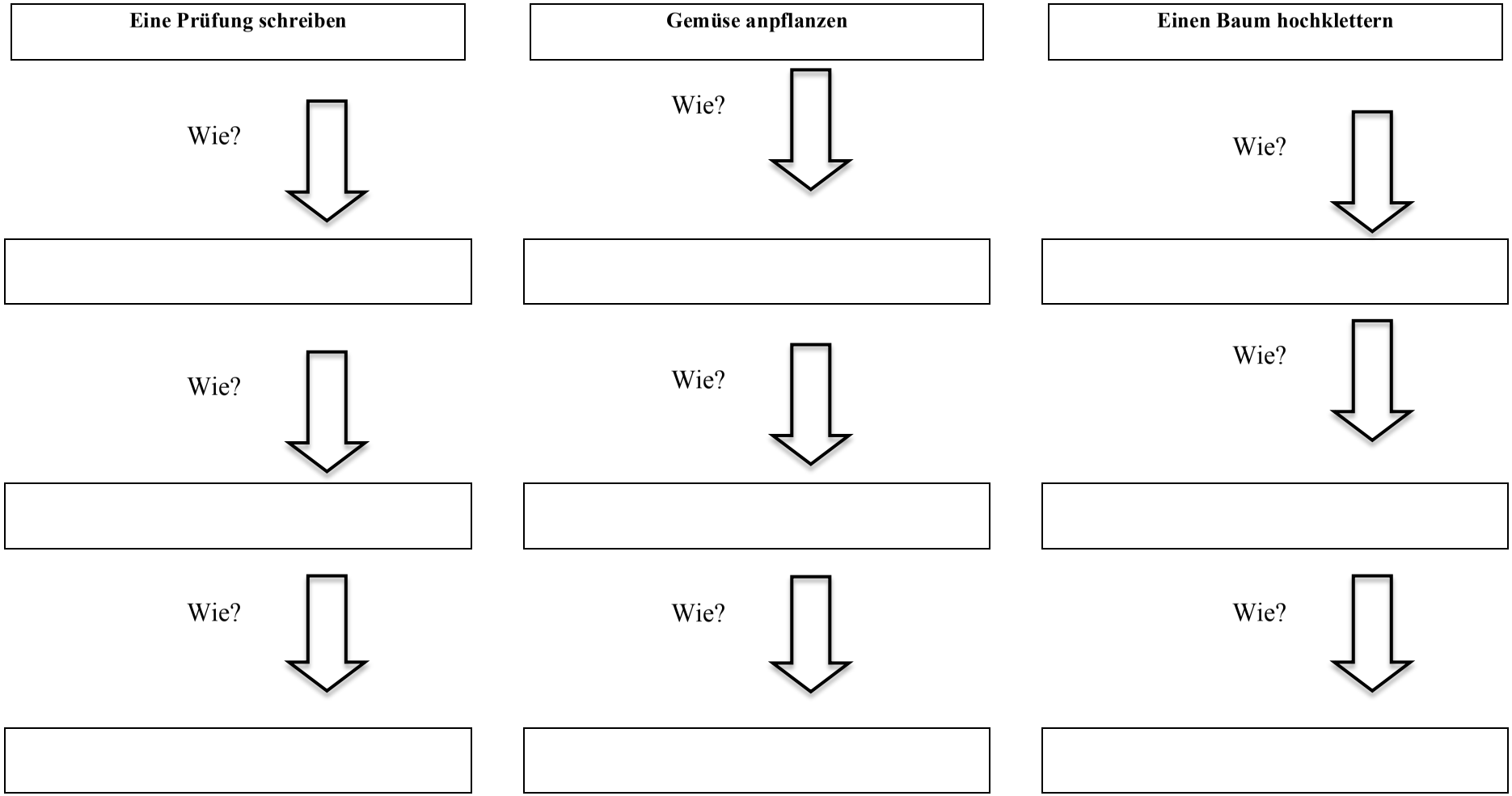
Concrete condition – Task 1.

Aufgabe 1

Für alles im Leben haben wir einen Ablauf, dem wir folgen. Unser Verhalten ist vom übergeordneten Ziel bis zur einzelnen Handlung verknüpft. Zum Beispiel suchen Sie womöglich wie jede/-r Student/-in nach einer Balance von Privatleben und Verpflichtungen. Wie kann man das schaffen? Den Überblick zu behalten, kann helfen. Aber wie kann man das schaffen? Indem man diszipliniert das Studium organisiert. Aber wie kann man das Studium organisieren? Indem man sich an Studienpläne hält. Wie kann man den Studienplan schaffen? Indem man konsequent die Anforderungen der Kurse erfüllt. Wie kann man die erfüllen? Indem man Aufgaben zeitnah erledigt usw.
Es gibt Forschung, die zeigt, dass solche Gedankenübungen dabei helfen, Lebensziele in konkrete Handlungen zu übersetzen.

So erledigen Sie die Aufgabe:
Die folgende Übung soll Ihre Aufmerksamkeit darauf richten, *wie* Sie Dinge tun. Wir testen diese Aufgabe hier in diesem Rahmen für eine spätere Verwendung in einer Studie zum Thema Lebenszufriedenheit.
Für dieses Gedankenexperiment denken Sie bitte über folgenden Zustand nach: „Mental ausgeglichen sein“ und stellen Sie sich die Frage: „Wie kann ich mental ausgeglichen sein?“. **Schreiben Sie uns Ihre Antwort in das nächste Kästchen**, z.B. „Regelmäßig joggen gehen“, und stellen Sie sich wieder die Frage „Wie kann ich regelmäßig joggen gehen?“. Nehmen wir wieder an Sie schreiben die Antwort „indem ich mir Zeit nehme“ auf, dann würde Ihre folgende Frage lauten „Wie kann ich mir die Zeit nehmen?“. Bitte vervollständigen Sie in dieser Art die Aufgabe zu drei unterschiedlichen Tätigkeiten und füllen Sie alle freien Kästchen aus.

10.2—7


Eine Prüfung schreiben
Wie?
Wie?
Wie?
Gemüse anpflanzen
Wie?
Wie?
Wie?
Einen Baum hochklettern
Wie?
Wie?
Wie?

Concrete and abstract condition – Task 2.

Aufgabe 2

Bitte setzen Sie nun die Kopfhörer auf und starten Sie den Film.
Drücken Sie dafür die Playtaste oder die Leertaste.

Aufgabe 2a

Bitte notieren Sie auf den dafür vorgesehenen Linien, die ersten fünf Dinge, die Ihnen im Bezug auf das bisher gesehene Video in den Sinn kommen.

Bitte formulieren Sie ganze Sätze, einzelne Wörter oder Wortgruppen sind nicht gültig.

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

Sie können nun das Video wieder starten. Drücken Sie dafür die Playtaste oder die Leertaste.

Aufgabe 2b

Bitte notieren Sie nun erneut auf den dafür vorgesehenen Linien, die ersten fünf Dinge, die Ihnen im Bezug auf das Video in den Sinn kommen.

Bitte formulieren Sie ganze Sätze, einzelne Wörter oder Wortgruppen sind nicht gültig.

(6) _____

(7) _____

(8) _____

(9) _____

(10) _____

10.2.3 Questionnaire 2

Questionnaire 2 was part of the abstract, concrete, and control 1 conditions.

Fragebogen 2

In diesem Fragebogen haben wir weitere Aussagen, für die Sie Ihre Zustimmung oder Ablehnung ausdrücken können. Wir interessieren uns jetzt für Ihre Einschätzung des Films und wie Sie sich während des Sehens gefühlt haben.

	trifft ganz und gar nicht zu	trifft überwiegend nicht zu	trifft eher nicht zu	trifft eher zu	trifft überwiegend zu	trifft voll und ganz zu
	1	2	3	4	5	6
In der Dokumentation wurden viele interessante Einzelheiten zum Thema genannt.	☐	☐	☐	☐	☐	☐
Die Dokumentation zog sich hin.	☐	☐	☐	☐	☐	☐
Die Dokumentation hat mich emotional aufgewühlt.	☐	☐	☐	☐	☐	☐
Die Dokumentation behandelte das Thema sehr oberflächlich.	☐	☐	☐	☐	☐	☐
In der Dokumentation kamen viele konkrete Beispiele vor.	☐	☐	☐	☐	☐	☐
Die Dokumentation war logisch aufgebaut.	☐	☐	☐	☐	☐	☐
Ich konnte den Ereignissen in der Dokumentation gut folgen.	☐	☐	☐	☐	☐	☐
Kreuzen Sie bitte das Feld rechts außen an.	☐	☐	☐	☐	☐	☐
Während der Dokumentation wollte ich wissen wie sich die Ereignisse weiter entwickeln würden.	☐	☐	☐	☐	☐	☐
Während der Sendung verlor ich jedes Zeitgefühl.	☐	☐	☐	☐	☐	☐
Die Dokumentation gab eher einen groben Überblick über das Thema.	☐	☐	☐	☐	☐	☐
Die Dokumentation hat mich zum nachdenken angeregt.	☐	☐	☐	☐	☐	☐
Die Dokumentation hat das Thema sehr konkret behandelt.	☐	☐	☐	☐	☐	☐
Ich war mental ganz in die Erzählungen versunken während ich die Dokumentation ansah.	☐	☐	☐	☐	☐	☐
Die Dokumentation hat das Leben aller Menschen repräsentiert, die auf ein Organ warten.	☐	☐	☐	☐	☐	☐
Ich habe mich um manche der Charaktere gesorgt.	☐	☐	☐	☐	☐	☐
Die Dokumentation hat das besprochene Thema sehr abstrakt beschrieben.	☐	☐	☐	☐	☐	☐
	wenig detailreich					sehr detailreich
	1	2	3	4	5	6
Die visuelle Darstellung war ...	☐	☐	☐	☐	☐	☐
Die inhaltliche Darstellung war ...	☐	☐	☐	☐	☐	☐
Die Darstellung der Figuren war …	☐	☐	☐	☐	☐	☐

10.2.4 Questionnaire 3

Questionnaire 3 was part of the abstract, concrete, control 1, and control 2 conditions.

Fragebogen 3

In diesem Fragebogen würden wir gerne Ihre Einstellung zum Thema Organspende erfahren. Jeder Mensch hat durch seinen persönlichen Lebenslauf eigene Erfahrungen mit verschiedenen Gesundheitsthemen gehabt. Ganz selbstverständlich ist jede Meinung daher individuell.

1) In der folgenden Fragentabelle finden Sie eine Reihe von Aussagen zum Thema Organspende. Lesen Sie jede Aussage aufmerksam bevor Sie eine Antwortentscheidung treffen. Machen Sie dann bitte deutlich, inwiefern die einzelne Aussage auf Sie persönlich zutrifft oder ob die einzelne Aussage Ihrer Meinung nach zutrifft.

	trifft ganz und gar nicht zu	trifft über-wiegend nicht zu	trifft eher nicht zu	trifft eher zu	trifft über-wiegend zu	trifft voll und ganz zu
	1	2	3	4	5	6
Ich halte Organspenden von hirntoten Menschen für akzeptabel.	☐	☐	☐	☐	☐	☐
Die Entnahme von Organen degradiert den hirntoten Menschen meines Erachtens zum Ersatzteillager.	☐	☐	☐	☐	☐	☐
Die Entnahme von Organen bei Hirntoten empfinde ich als Leichenschändung.	☐	☐	☐	☐	☐	☐
Die Organentnahme verletzt meiner Meinung nach das Recht des Sterbenden auf ein würdiges Sterben.	☐	☐	☐	☐	☐	☐
Ich habe vor, demnächst einen Organspendeausweis auszufüllen. ☐ Ich besitze bereits einen Organspendeausweis.	☐	☐	☐	☐	☐	☐
Ich werde mir weitere Informationen zum Thema beschaffen.	☐	☐	☐	☐	☐	☐
Bitte kreuzen Sie das Feld ganz links an.	☐	☐	☐	☐	☐	☐
Ich werde in Zukunft meine Meinung zur Organspende meinen Angehörigen mitteilen, so dass sie im Falle meines Hirntodes eine Entscheidung in meinem Sinne treffen können.	☐	☐	☐	☐	☐	☐
Ich würde es akzeptieren, wenn nach meinem Hirntod eine Organspende entnommen wird, auch wenn ich keinen Organspendeausweis ausgefüllt habe.	☐	☐	☐	☐	☐	☐
Ich lehne es ab, nach meinem Hirntod als Organspender verwendet zu werden.	☐	☐	☐	☐	☐	☐
Ich werde in Zukunft meine Verwandten und Bekannten dazu bewegen, einen Organspendeausweis auszufüllen.	☐	☐	☐	☐	☐	☐

Fragebogen 3

2) Als nächstes lesen Sie einige Informationen zu Organspende und Hirntod. Bitte bewerten Sie die Informationen als richtig oder falsch.

Hirntod....	**richtig**	**falsch**
Ist endgültig	☐	☐
Muss von zwei unabhängigen Ärzten festgestellt werden	☐	☐
Heißt auch der/die Patient/in atmet noch selbstständig.	☐	☐
Ist ein neuzeitliches Konzept.	☐	☐
Organspenden sind verpflichtend in Deutschland.	☐	☐
Nach einer Organspende...		
Hat der/die Patient/in eine normale Lebenserwartung.	☐	☐
Sind Medikamente nötig, damit das neue Organ nicht abgestoßen wird.	☐	☐
Ist das Immunsystem des/der Patient/in gestärkt.	☐	☐

3) Sie sind nun gebeten einige Einschätzungen vorzunehmen. Bitte treffen Sie diese Einschätzungen ganz frei nach Bauchgefühl.

Jasmin hat gerade einen Organspendeausweis ausgefüllt, wie nah oder fern fühlen sich gerade zu ihr?

Sehr Nah						Sehr Fern
1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐

Sonja weigert sich den Organspendeausweis ihrer schwerkranken Mutter anzuerkennen, wie nah oder fern fühlen sich gerade zu ihr?

Sehr Nah						Sehr Fern
1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐

Für wie wahrscheinlich halten Sie es, dass Sie selbst einmal ein Spenderorgan benötigen?

Sehr Unwahr-scheinlich						Sehr Wahr-scheinlich
-3	-2	-1	0	+1	+2	+3
☐	☐	☐	☐	☐	☐	☐

Conrad ist junger Assistenzarzt und benötigt ein Spenderorgan für einen seiner Patienten. Der Patient steht auf Platz 5 der Warteliste. Wie lange, schätzen Sie, muss Conrad und sein Patient auf das Organ warten?

_____ Tage

Bitte schätzen Sie ohne weitere Informationen ein, wie weit entfernt das Krankenhaus ist, in dem Conrad arbeitet.

Sehr Nah						Sehr Fern
1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐

Fragebogen 3

4) Bitte machen Sie einige kurze Angaben zu Ihrer Person.

Haben Sie im privaten Umfeld Erfahrungen mit Organspenden gehabt?

☐ ja ☐ Ich möchte darauf nicht antworten.

☐ nein

Bitte geben Sie Ihr Alter in Jahren an: ___ Jahre

Bitte signalisieren Sie Ihr Geschlecht:

☐ männlich

☐ weiblich ☐ Ich möchte darauf nicht antworten.

Wenn Sie unserem Erhebungsteam noch anonym einen Tipp geben oder einfach nur etwas loswerden möchten, können Sie das hier tun.

Vielen Dank für Ihre Teilnahme!

Bitte schließen Sie die Mappe und legen Sie Ihre Einverständniserklärung oben auf.

10.2.5 Debriefing Study 1

Information zum Experiment: Bedeutung des Construal Level bei der Verarbeitung von Medienbotschaften

Sehr geehrte/r TeilnehmerIn,

Sie haben im Zeitraum vom 29.10.2012 - 27.11.2012 an einer Studie der Universität Mannheim, Seminar für Medien- und Kommunikationswissenschaft teilgenommen, in der Sie entweder einen Film über das Thema Organspende oder HIV präsentiert bekamen und hierzu einen Fragebogen bearbeiten sollten, oder nur eben genannte Fragebogen beantworteten. Vielen Dank noch einmal an dieser Stelle für Ihre Teilnahme! Zudem haben Sie Ihre E-Mail-Adresse hinterlassen, um über die wissenschaftliche Fundierung dieser Studie informiert zu werden.

Zunächst einmal muss aufgeklärt werden, dass wir Ihnen vor Ort absichtlich falsche Informationen über die Studie gegeben haben, um die Ergebnisse nicht zu verfälschen. Es handelte sich bei diesem Experiment nicht um verschiedene, zusammenhangslose Fragebögen, sondern um eine große, thematisch einheitliche Untersuchung.

Unser Experiment ging der Frage nach, ob sich durch eine vorherige Beeinflussung des sog. *Construal Levels* die spätere Wahrnehmung eines Themas (Organspende; HIV) verändert.
Bei dem eben erwähnten *'Construal Level'* handelt es sich um Folgendes:
Wenn wir über etwas nachdenken, entstehen mentale Konstrukte. Diese mentalen Konstrukte beziehen sich dabei auf die *mentale Rekonstruktion aufgenommener Informationen*. Durch eine Reihe von situativen Einflüssen ist diese Rekonstruktion entweder abstrakt oder detailreich.

Ein Beispiel zum Thema 'Umziehen':
Dieses Beispiel kann rekonstruiert werden als
'einen neuen Lebensabschnitt beginnen' = abstraktes Verständnis, hohe zeitliche Distanz
→ ***High Construal Level***
oder als *'Kisten packen'* = detailliertes, konkretes Verständnis, geringe zeitliche Distanz
→ ***Low Construal Level.***

Wir haben nun versucht Sie und die weiteren Versuchspersonen im ersten Teil des Fragebogens auf ein '*High,* oder *Low Construal Level*' anzuregen. Daraufhin haben wir manchen von Ihnen eine Dokumentation gezeigt. Während und nach der Dokumentation wurden Sie aufgefordert, einige Gedanken zur Dokumentation aufzuschreiben. Diese Antworten werden linguistisch kodiert, um Ihren angewandten Abstraktionsgrad erfassen zu können. Im zweiten Teil des Fragebogens wurde dann durch Kontrollfragen getestet wie Sie den Film wahrgenommen haben und ihre Einstellung zum Gesundheitsthema erhoben.

Da wir unsere Experiment-Phase erst vor kurzem abgeschlossen haben, sind die Daten noch nicht ausgewertet. Unsere Vermutung ist allerdings, dass das anfängliche Construal Level einer Versuchsperson auf den Film angewandt wird und wir hoffen auf daraus resultierende Unterschiede zwischen den Einstellungen zum jeweiligen Gesundheitsthema (die Dokumentation wird entweder mental abstrakt oder einfach

rekonstruiert und beeinflusst so die konkrete Meinungsbildung bzw. Einstellung zu der Thematik).

Falls Sie noch weiteres Interesse zum Thema *Construal Level Theory* haben und sich gerne zusätzlich informieren möchten, finden Sie Antworten in folgender Literatur:

> Trope, Y., Libermann, N. Constral Level Theory. in: Lange, Paul A.M. van, Handbook of theories of social psychology (S 118-135)

Verlosung und Teilnahmebestätigungen

Die folgenden TeilnehmerInnen wurden durch Losverfahren ermittelt und haben einen 5€-Amazon-Gutschein gewonnen:

1. Felix [redacted]
2. Katrin [redacted]
3. Laura [redacted]
4. Susanne [redacted]
5. Venukah [redacted]
6. Marek [redacted]
7. Nicole [redacted]
8. Carolin [redacted]
9. Julia [redacted]
10. Demona [redacted]
11. Anna [redacted]
12. Sebastian [redacted]
13. Anica [redacted]

Teilnehmer, die sich für eine Teilnahmebescheinigung zwecks VPN Stunden eingeschrieben haben, können diese ab jetzt abholen.

Die Gutscheine und Teilnahmebestätigung sind bis zum 13.12.12 im Haus Oberrhein (wo das Experiment stattfand) von Mo - Do 10:30 Uhr bis 12:30 Uhr, 6. Stock bei Frau *Karen Kent* abzuholen. Bitte bringen Sie Ihren Studierendenausweis oder einen anderen Ausweis mit.

Wir danken Ihnen noch einmal herzlich für Ihre Teilnahme und verbleiben mit freundlichen Grüßen,
Das Seminar: Quantitative Methodeneinübung – Das psychologische Experiment

10.3 Study 2

10.3.1 United States

Study 2 – English Onlinequestionnaire				
Projekt-ID	*139577*			
URL der Umfrage	*http://ww2.unipark.de/uc/vorderer_Universit__t_Mannheim/37fc/*			
Datum (GMT)	*02-04-2014 09:47:17*			
1	**Welcome Page (PGID 736732)**			

University of Southern California

(Annenberg School for Communication and Journalism, Sabine Reich, M.A., sabine.reich@usc.edu)

Informed Consent for Non-Medical Research

Cognitive and affective reactions to mediated messages

You are invited to participate in a research study conducted by **(Sabine Reich, visiting Ph.D. student at the Annenberg School of Communication and Journalism, PI Michael Cody, Ph.D.)** at the University of Southern California. Your participation is voluntary. You should read the information below, and ask questions about anything you do not understand, before deciding whether to participate. Please take as much time as you need to read the consent form. You may also decide to discuss participation with your family or friends. If you decide to participate, you press the **continue** button below.

PURPOSE OF THE STUDY

The online study has several unrelated parts to it. The purpose of this study is to measure a variety of psychological reactions to media messages. In all cases we are interested in your immediate reactions to those media stimuli. There are no right or wrong answers.

STUDY PROCEDURES

If you volunteer to participate in this study, you will be asked to watch a short video clip and/or read a short message. You will be asked to imply your feelings and thoughts in both writing and on numerical scales. This is an experimental study so that you will be randomly assigned to the media message by the computer.

The participation will vary between 20 to 40 minutes. The complete study will be answered online.

POTENTIAL RISKS AND DISCOMFORTS

There are no social, physiological, financial, or legal risks associated with this study.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

All parts of the study seek to measure cognitive and emotional reactions to media messages. It is a basic media psychological study that should help to clarify processing of mediated messages for further investigations on how public health information can be improved.

PAYMENT/COMPENSATION FOR PARTICIPATION

Participants from the Annenberg School of Communication and Journalism can receive course credit (if eligible). You will not be paid for participating in this research study.

CONFIDENTIALITY

We will keep your records for this study confidential as far as permitted by law. However, if we are required to do so by law, we will disclose confidential information about you. The members of the research team and the University of Southern California's Human Subjects Protection Program (HSPP) may access the data.The HSPP reviews and monitors research studies to protect the rights and welfare of research subjects.

The data will be stored **on the survey server and can be accessed only by the research team (password protected). It is later downloaded to a university computer to analyze (password protected). Written answers may be released separately from the data set to trained coders. Identifying information will only be collected from participants receiving course credit. The personal data will be kept separate from the answers.**

The data will be kept for at least two years after study completion in late 2014.

PARTICIPATION AND WITHDRAWAL

Your participation is voluntary. Your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study.

ALTERNATIVES TO PARTICIPATION

If you are participating for course credit alternative studies may be available to you (subject to availability).

INVESTIGATOR'S CONTACT INFORMATION

If you have any questions or concerns about the research, please feel free to contact Sabine Reich, M.A. (responsible CO-PI) at sabine.reich@usc.edu or 213 284 2061 or Michael Cody, cody@usc.edu.

RIGHTS OF RESEARCH PARTICIPANT – IRB CONTACT INFORMATION

If you have questions, concerns, or complaints about your rights as a research participant or the research in general and are unable to contact the research team, or if you want to talk to someone independent of the research team, please contact the University Park Institutional Review Board (UPIRB), 3720 South Flower Street #301, Los Angeles, CA 90089-0702, (213) 821-5272 or upirb@usc.edu

Consent

I have read the information provided above. I have been given a chance to ask questions. My questions have been answered to my satisfaction, and I agree to participate in this study.

Press continue below.

2	**DCL Disposition (PGID 736742)**			
Making a list (q_1370524 - Typ 111)				
DCL1	v_89	int	DCL1 engl	
		1	*Writing things down*	
		2	*Getting organized*	
Reading (q_1370525 - Typ 111)				
DCL2	v_90	int	DCL2 engl	
		1	*Following lines of print*	
		2	*Gaining knowledge*	
Joining the Army (q_1370526 - Typ 111)				
DCL3	v_92	int	DCL 3 engl	
		1	*Signing up*	
		2	*Helping the Nation's defense*	
Washing clothes (q_1370527 - Typ 111)				
DCL4	v_91	int	DCL 4 engl	
		1	*Putting cloths into the machine*	
		2	*Removing odors from cloths*	
Picking an apple (q_1370528 - Typ 111)				
DCL5	v_93	int	DCL5 engl	
		1	*Pulling an apple off a branch*	
		2	*Getting something to eat*	
Chopping down a tree (q_1370529 - Typ 111)				
DCL6	v_94	int	DCL6 engl	
		1	*Wielding an axe*	
		2	*Getting firewood*	
Measuring a room for carpeting (q_1370530 - Typ 111)				
DCL7	dupl1_v_95	int	DCL7 engl	
		1	*Using a yardstick*	
		2	*Getting ready to remodel*	
Cleaning the house (q_1370531 - Typ 111)				
DCL8	v_96	int	DCL8 engl	
		1	*Vaccuming the floor*	
		2	*Showing one's cleanliness*	
Painting a room (q_1370532 - Typ 111)				
DCL9	dupl1_v_97	int	DCL9 engl	
		1	*Applying brush strokes*	
		2	*Making the room look fresh*	

Paying the rent (q_1370533 - Typ 111)				
DCL10	dupl1_v_98	int	DCL10 engl	
		1	*Writing a check*	
		2	*Maintaining a place to live*	
Caring for houseplants (q_1370534 - Typ 111)				
DCL11	v_99	int	DCL11 engl	
		1	*Watering plants*	
		2	*Making the room look nice*	
Locking a door (q_1370535 - Typ 111)				
DCL12	v_100	int	DCL12 engl	
		1	*Putting a key in the lock*	
		2	*Securing the house*	
Voting (q_1370536 - Typ 111)				
DCL13	v_101	int	DCL13 engl	
		1	*Marking a ballot*	
		2	*Influencing the election*	
Climbing a tree (q_1370537 - Typ 111)				
DCL14	dupl1_v_102	int	DCL14 engl	
		1	*Holding on to branches*	
		2	*Getting a good view*	
Filling out a personality test (q_1370538 - Typ 111)				
DCL15	v_28	int	DCL15 engl	
		1	*Answering questions*	
		2	*Revealing what you're like*	
Toothbrushing (q_1370539 - Typ 111)				
DCL16	v_29	int	DCL16 engl	
		1	*Moving a brush around in one's mouth*	
		2	*Preventing tooth decay*	
Taking a test (q_1370540 - Typ 111)				
DCL17	v_30	int	DCL17 engl	
		1	*Answering questions*	
		2	*Showing one's knowledge*	

Greeting someone (q_1370541 - Typ 111)				
DCL18	v_31	int	DCL18 engl	
		1	*Saying hello*	
		2	*Showing friendliness*	
Resisting temptation (q_1370542 - Typ 111)				
DCL19	v_32	int	DCL19 engl	
		1	*Saying "no"*	
		2	*Showing moral courage*	
Eating (q_1370543 - Typ 111)				
DCL20	v_33	int	DCL20 engl	
		1	*Chewing and swallowing*	
		2	*Getting nutrition*	
Growing a garden (q_1370544 - Typ 111)				
DCL21	v_34	int	DCL21 engl	
		1	*Planting seeds*	
		2	*Getting fresh vegetable*	
Traveling by car (q_1370545 - Typ 111)				
DCL22	v_35	int	DCL22 engl	
		1	*Following a map*	
		2	*Seeing the countryside*	
Having a cavity filled (q_1370546 - Typ 111)				
DCL23	v_36	int	DCL23 engl	
		1	*Going to the dentist*	
		2	*Protecting your teeth*	
Talking to a child (q_1370547 - Typ 111)				
DCL24	v_37	int	DCL24 engl	
		1	*Using simple words*	
		2	*Teaching a child something*	
Pushing a doorbell (q_1370548 - Typ 111)				
DCL25	v_39	int	DCL25 engl	
		1	*Moving a finger*	
		2	*Seeing if someone's home*	
3.1	**Movie a (PGID 736744) - Positive**			

3.1.1	**Eval1 (PGID 736745)**			
What feelings are you experiencing right now? (q_1370550 - Typ 311)				
v_148		int	negative feelings	
	eval1A	*1*	*not at all*	
		2		
		3		
		4		
		5		
		6		
		7		
		8		
		9	*very much*	
v_149		int	positive feelings	
	eval2A	*1*	*not at all*	
		2		
		3		
		4		
		5		
		6		
		7		
		8		
		9	*very much*	
3.2	**Movie b (PGID 736746) - Negative Movie**			

3.2.1	**Eval 2 (PGID 736747)**

What feelings are you experiencing right now? (q_1370552 - Typ 311)				
v_150		int	negative feelings	
	eval1B	*1*	*not at all*	
		2		
		3		
		4		
		5		
		6		
		7		
		8		
		9	*very much*	
v_151		int	positive feelings	
	eval2B	*1*	*not at all*	
		2		
		3		
		4		
		5		
		6		
		7		
		8		
		9	*very much*	
4	**Text (PGID 736733)**			
	The following information is distributed by leading blood donation organization. Please read carefully.			

Donate Blood!

Everyday patients in the US need blood transfusions. Blood cannot be manufactured; it can only come from volunteer donors. Blood is needed for emergency operations following accidents as well as for cancer patients or patients with cell defects. The demand for blood transfusions is usually higher than the supply. Only a tenth of the eligible US population donates blood. Donating blood is easy, safe, and takes approx. 35 minutes for most donors. Donors receive a free mini physical to check body temperature, blood pressure, pulse and hemoglobin levels. After giving blood, donors are provided with a light snack and drinks. With 15 minutes of relaxation, food and drink, a donor can continue with their everyday activities.

Think about donating blood and check if you are eligible with your local Red Cross office.

One pint of blood can save up to three lives.				
5	**TLInstruction (PGID 736734)**			
Your next task is to write down everything you remember thinking about while you were reading the blood donation message. You have 5 minutes for the task. The next page contains the form we have prepared for your use to record your thoughts and ideas. Simply write down the first thought you had in the first box, the second in the second box, etc. Please put only one idea or thought in a box. We have deliberately provided more space than we think people will need, to ensure that everyone would have plenty of room. So don't worry if you don't use all the provided boxes. Please try to write complete sentences for this task, but don't be worried about spelling or grammatical details. Please be completely honest. Your responses will be anonymous.				
6	**Thoughts (PGID 736735)**			
While reading the message, I remember thinking: (q_1350378 - Typ 142)				
v_1	v_1	blob	Thoughts 1	
While reading the message, I remember thinking: (q_1350382 - Typ 142)				
v_2	v_2	blob	Thoughts 2	
While reading the message, I remember thinking: (q_1350383 - Typ 142)				
v_3	v_3	blob	Thoughts 3	
While reading the message, I remember thinking: (q_1350384 - Typ 142)				
v_4	v_4	blob	Thoughts 4	
While reading the message, I remember thinking: (q_1361560 - Typ 142)				
v_6	v_6	blob	Thoughts 5	
While reading the message, I remember thinking: (q_1361561 - Typ 142)				
v_7	v_7	blob	Thoughts 6	
While reading the message, I remember thinking: (q_1361562 - Typ 142)				
v_8	v_8	blob	Thoughts 7	
While reading the message, I remember thinking: (q_1361563 - Typ 142)				
v_9	v_9	blob	Thoughts 8	
While reading the message, I remember thinking: (q_1361564 - Typ 142)				

v_10	v_10	blob	Thoughts 9	
While reading the message, I remember thinking: (q_1361565 - Typ 142)				
v_11	v_11	blob	Thoughts 10	
7	**Estimates (PGID 736736)**			
The following questions ask you to estimate the occurrence of medical events in percents. (q_1370471 - Typ 144)				
v_118	v_118	varchar	What percentage of treatments in hospitals incorporates blood transfusions?	
v_119	v_119	varchar	What percentage of treatments in hospitals incorporates blood transfusions?	
v_120	v_120	varchar	What percentage of individuals will need a blood transfusion at least once throughout their life?	
v_121	v_121	varchar	What percentage of the US population is eligible to donate blood?	
v_122	v_122	varchar	What percentage of the US population donates blood on a regular basis?	
8	**Attitude Measures (PGID 736748)**			
Below you'll see statements relating to blood donation. We are interested in your level of agreement or disagreement with these matters. Keep in mind, your personal answers are not judged, rather we are interested in the general trend of all study participants. (q_1370553 - Typ 311)				
v_152	v_152	int	I think blood donation does not contribute to others' well-being.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	
		7	*agree strongly*	
v_153	v_153	int	I think donating blood is an ethical behavior.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	
		7	*agree strongly*	

v_154	v_154	int	I think participating in blood donation is beneficial to other people in the society.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	
		7	*agree strongly*	
v_155	v_155	int	I dislike seeing blood.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	
		7	*agree strongly*	
v_156	v_156	int	I feel nervous about blood donation.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	
		7	*agree strongly*	
v_157	v_157	int	I fear contracting an infection from donating blood.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	
		7	*agree strongly*	
v_158	v_158	int	I fear bruised and sore arms from donating blood.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	
		7	*agree strongly*	
v_159	v_159	int	I have a fear of needels.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	

		7	*agree strongly*	
v_160	v_160	int	I fear that an illness will be detected during donating blood.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	
		7	*agree strongly*	
v_161	v_161	int	I don't have enough time to donate blood.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	
		7	*agree strongly*	
v_162	v_162	int	I fear donating blood will reduce my vitality and immunity.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	
		7	*agree strongly*	
v_163	v_163	int	I haven't given blood donation a lot of thought.	
		1	*disagree strongly*	
		2	*disagree moderately*	
		3	*disagree slightly*	
		4	*undecided*	
		5	*agree slightly*	
		6	*agree moderately*	
		7	*agree strongly*	
9	**Control Variables (PGID 736739)**			
We are interested in the relevance of blood donation in your life. (q_1364995 - Typ 311)				
v_95	v_95	int	How relevant is blood donation to you personally?	
		1	*highly irrelevant*	
		2	*moderately irrelevant*	
		3	*slightly irrelevant*	
		4	*undecided*	
		5	*slightly relevant*	
		6	*moderately relevant*	
		7	*highly relevant*	

The following items ask you to indicate how likely you are to act on blood donation in the next year. (q_1364996 - Typ 311)				
v_97	v_97	int	How likely are you to donate blood within the next 12 months?	
	beh1	*1*	*absolutely not*	
		2	*very unlikely*	
		3	*possibly not*	
		4	*unsure*	
		5	*probably*	
		6	*very likely*	
		7	*definitely*	
		8	*I know I am not eligible within the next 12 months.*	
v_98	v_98	int	How likely are you to check if you are eligible to donate blood with the next 12 months?	
	beh2	*1*	*absolutely not*	
		2	*very unlikely*	
		3	*possibly not*	
		4	*unsure*	
		5	*probably*	
		6	*very likely*	
		7	*definitely*	
		8	*I know I am not eligible within the next 12 months.*	
Are you... (q_1369574 - Typ 112)				
v_102	v_102	int	Blood Donors	
		1	*a regular blood donor? (at least two times in the past 12 months?)*	
		2	*not a regular blood donor?*	
10	**SocDemo (PGID 736740)**			
Eventually, please give me some information on your social characteristics:What sex do you most identify with? (q_1361587 - Typ 112)				
v_23	v_40	int	Sex	
		1	*male*	
		2	*female*	
		3	*transgender*	
		4	*none of the above*	
What year were you born? (q_1361588 - Typ 141)				
v_24	v_41	varchar (mit Typencheck: Ganzzahl)	Age	
What is the highest level of education you have completed? (q_1361589 - Typ 131)				

v_25	v_47	int	Education	
		1	*high school graduate*	
		2	*trade/technical/vocational training*	
		3	*Bachelor*	
		4	*Master*	
		5	*PhD*	

You have answered all questions. Thank you for your participation. By clicking continue you will now be forwarded to a seperate questionnaire, where all students receiving credit for participating have to sign up.

Thank You!

10.3.2 Germany

Study 2 – German Onlinequestionnaire				
Projekt-ID	*142739*			
URL der Umfrage	*http://ww2.unipark.de/uc/vorderer_Universit__t_Mannheim/eb42/*			
Datum (GMT)	*05-04-2014 09:55:48*			
1	**Welcome Page (PGID 756879)**			

Universität Mannheim
Sabine Reich, M.A.

Einwilligung zur Forschungsteilnahme

Kognitive und affektive Wirkung von medienübermittelten Informationen

Sie sind eingeladen, an einer kurzen Untersuchung im Rahmen eines Promotionsprojektes an der Universität Mannheim teilzunehmen. Ihre Teilnahme ist freiwillig. Bitte lesen Sie die Informationen unten aufmerksam durch. Bei Fragen wenden Sie sich bitte an Sabine Reich (s.reich@uni-mannheim.de). Sollten Sie für die Teilnahme einwilligen, klicken Sie unten bitte auf das Feld "Weiter".

Ziel der Studie

Diese Onlinestudie hat zwei Teile. In beiden Teilstudien möchte ich psychologische Reaktionen auf einen Medientext untersuchen. Sie werden einen Text und ein Video im Verlauf der Studie ansehen. Für einzelne Teilnehmer können teile der Medienangebote emotional aufreibend sein. In jedem Fall ist Ihre direkte Reaktion auf die Information gefragt. Es gibt deshalb auch keine richtigen oder falschen Antworten.

Form der Befragung

Sollten Sie an der Studie teilnehmen, werden Sie einen kurzen Film und/oder einen kurzen Text lesen. Im Anschluss sind Sie jeweils dazu angehalten, Ihre Eindrücke auf numerischen Skalen und in freier Textform zu schildern. Es handelt sich um eine experimentelle Studie und alle Teilnehmer werden zufällig den Medienprodukten zugeteilt. Keine der Gruppen hat einen Vorteil gegenüber den anderen.

Die Teilnahme dauert im Schnitt 20 bis 30 Minuten.

Gefahren und Risiken

Mit der Teilnahme gehen keine sozialen, physiologischen, finanziellen oder legalen Risiken einher.

Vertraulichkeit Ihrer Angaben

Ich werde die Angaben und Daten dieser Studien vertraulich behandeln. Die Daten werden auf einem Server gesichert, der nur dem wissenschaftlichen Team des Lehrstuhls von Prof. Dr. Vorderer, Institut für Medien- und Kommunikationswissenschaft, Universität Mannheim zugänglich ist. Offene Antworten werden anonymisiert eventuell an geschulte Kodierer weitergeleitet. Die Daten werden mindestens zwei Jahre nach der Erhebung gespeichert.

Ablehnung oder Abbruch der Teilnahme

Ihre Teilnahme ist freiwillig. Die Ablehnung oder der Abbruch der Teilnahme gereicht niemanden zum Nachteil.

Zustimmung

Möchten Sie an der Studie teilnehmen unter den oben genannten Bedingungen klicken Sie bitte auf das "Weiter"-Feld.

2	DCL Disposition (PGID 756897)			
Eine Liste machen (q_1403523 - Typ 111)				
DCL1		int	DCL1	
		1	*Etwas aufschreiben*	
		2	*Organisieren*	
Lesen (q_1403524 - Typ 111)				
DCL2		int	DCL2	
		1	*Gedruckten Zeilen folgen*	
		2	*Wissen aneignen*	
Sich bei der Bundeswehr bewerben (q_1403525 - Typ 111)				
DCL3		int	DCL 3	
		1	*Anmeldung ausfüllen*	
		2	*Unterstützung der nationalen Verteidigung*	
Wäsche waschen (q_1403526 - Typ 111)				
DCL4		int	DCL 4	
		1	*Kleidung in die Waschmaschine packen*	
		2	*Gerüche aus der Kleidung entfernen*	
Einen Apfel pflücken (q_1403527 - Typ 111)				
DCL5		int	DCL5	
		1	*Einen Apfel vom Zweig ziehen*	
		2	*Etwas zu essen bekommen*	
Einen Baum fällen (q_1403528 - Typ 111)				
DCL6		int	DCL6	
		1	*Eine Axt schwingen*	
		2	*Feuerholz machen*	
Einen Raum ausmessen (q_1403529 - Typ 111)				
DCL7		int	DCL7	
		1	*Einen Zollstock benutzen*	
		2	*Eine Renovierung vorbereiten*	
Das Haus putzen (q_1403530 - Typ 111)				
DCL8		int	DCL8	
		1	*Staub saugen*	
		2	*Die eigene Sauberkeit vorzeigen*	
Einen Raum malern (q_1403531 - Typ 111)				
DCL9		int	DCL9	
		1	*Eine Farbrolle auf der Wand abrollen*	
		2	*Einen Raum neu gestalten*	

Die Miete bezahlen (q_1403532 - Typ 111)				
DCL10		int	DCL10	
		1	*Einen Überweisung ausfüllen*	
		2	*Eine Wohnung unterhalten*	
Sich um Zimmerpflanzen kümmern (q_1403533 - Typ 111)				
DCL11		int	DCL11	
		1	*Blumen gießen*	
		2	*Den Raum gemütlich machen*	
Die Haustür abschließen (q_1403534 - Typ 111)				
DCL12		int	DCL12	
		1	*Einen Schlüssel ins Schloss stecken*	
		2	*Das Haus/Wohnung sichern*	
Wählen gehen (q_1403535 - Typ 111)				
DCL13		int	DCL13	
		1	*Den Stimmzettel ausfüllen*	
		2	*Eine Wahl beeinflussen*	
Auf einen Baum klettern (q_1403536 - Typ 111)				
DCL14		int	DCL14	
		1	*Sich an Zweigen festhalten*	
		2	*Eine gute Aussicht bekommen*	
Einen Persönlichkeitstest ausfüllen (q_1403537 - Typ 111)				
DCL15		int	DCL15	
		1	*Fragen beantworten*	
		2	*Zeigen wie man ist*	
Zähne putzen (q_1403538 - Typ 111)				
DCL16		int	DCL16	
		1	*Die Zahnbürste im Mund bewegen*	
		2	*Karies verhindern*	
Eine Prüfung schreiben (q_1403539 - Typ 111)				
DCL17		int	DCL17	
		1	*Fragen beantworten*	
		2	*Das eigene Wissen beweisen*	
Jemanden grüßen (q_1403540 - Typ 111)				
DCL18		int	DCL18	
		1	*Hallo sagen*	
		2	*Freundlich sein*	
Einer Versuchung widerstehen (q_1403541 - Typ 111)				
DCL19		int	DCL19	
		1	*"Nein" sagen*	
		2	*Moralisch handeln*	

Essen (q_1403542 - Typ 111)				
DCL20		int	DCL20	
		1	*Kauen und schlucken*	
		2	*Nährstoffe aufnehmen*	
Eine Gemüsegarten anlegen (q_1403543 - Typ 111)				
DCL21		int	DCL21	
		1	*Samen sähen*	
		2	*Frisches Gemüse bekommen*	
Mit dem Auto reisen (q_1403544 - Typ 111)				
DCL22		int	DCL22	
		1	*Der Karte folgen*	
		2	*Die Landschaft sehen*	
Eine Zahnfüllung bekommen (q_1403545 - Typ 111)				
DCL23		int	DCL23	
		1	*Zum Zahnarzt gehen*	
		2	*Die eigenen Zähne schützen*	
Mit einem Kind sprechen (q_1403546 - Typ 111)				
DCL24		int	DCL24	
		1	*Einfache Wörter nutzen*	
		2	*Einem Kind etwas beibringen*	
An einer Tür klingeln (q_1403547 - Typ 111)				
DCL25		int	DCL25	
		1	*Den Finger benutzen*	
		2	*Sehen, ob jemand zu Hause ist*	
3.1	**Movie a (PGID 756882)**			
				
3.1.1	**Eval1 (PGID 756883)**			

Welche Gefühle erfahren Sie jetzt im Moment? (q_1370550 - Typ 311)				
v_148		int	Negative Gefühle	
	eval1A	*1*	*überhaupt nicht*	
		2		
		3		
		4		
		5		
		6		
		7	*sehr stark*	
v_149		int	Positive Gefühle	
	eval2A	*1*	*überhaupt nicht*	
		2		
		3		
		4		
		5		
		6		
		7	*sehr stark*	
3.2	**Movie b (PGID 756884)**			
				
3.2.1	**Eval 2 (PGID 756885)**			
Welche Gefühle erfahren Sie jetzt im Moment? (q_1403555 - Typ 311)				
v_191		int	Negative Gefühle	
	eval1B	*1*	*überhaupt nicht*	
		2		
		3		
		4		
		5		
		6		
		7	*sehr stark*	
v_192		int	Positive Gefühle	
	eval2B	*1*	*überhaupt nicht*	
		2		
		3		
		4		
		5		
		6		
		7	*sehr stark*	

4	**Text (PGID 756886)**
	Das folgende Informationsmaterial wird durch Bluttransfusionszentren verteilt. Bitte Lesen Sie diese Information aufmerksam.

Spenden Sie Blut!

Jeden Tag benötigen Patientinnen und Patienten in Deutschland Bluttransfusionen. Blut kann nicht künstlich hergestellt werden; es kann nur von Spender(inne)n gewonnen werden. In der medizinischen Versorgung wird Blut sowohl für die Behandlung von Unfallpatient(inn)en benötigt, als auch für Krebspatient(inn)en oder Patient(inn)en mit Krankheiten der inneren Organe. D Blutbedarf übersteigt dabei häufig die Vorräte. Nur etwa vier Prozent der Bundesbürger(inn)en spenden regelmäßig Blut. Blut spenden ist einfach, sicher und dauert für die meisten Spender(inn)en nicht mehr als 60 Minuten. Vor der Blutentnahme sprechen Spender(inn)en mit einem/-r Arzt/Ärztin. Dabei werden wichtige Funktionen wie Körpertemperatur, Blutdruck, Puls und der Gehalt an rotem Blutfarbstoff (Hämoglobin) untersucht, die auch der frühen Diagnose von Krankheiten dienen. Die eigentliche Blutspende dauert nur etwa zehn Minuten. Im Anschlu an die Blutentnahme erhalten Spender(inn)en einen kleinen Imbiss und können sich für einige Minuten ausruhen. Nach dieser kurzen Entspannungsphase können sie den restlichen Tag wie gewohnt fortführen.

Bitte denken Sie über eine Blutspende nach und erkundigen Sie sich bei Ihrer lokalen Blutbank, ob Sie die erforderlichen Voraussetzungen erfüllen. Bereits 500 ml Blut können bis zu drei Leben retten.

5	**TLInstruction (PGID 756887)**

In der nächsten Aufgabe bitte ich Sie, alle Gedanken aufzuschreiben, die Sie während des Lesens der Information zur Blutspende auf der vorherigen Seite hatten, soweit Sie sich erinnern können. Nehmen Sie sich etwa 5 Minuten Zeit dazu.

Auf der nächsten Seite finden Sie eine Vorlage dafür. Schreiben Sie den ersten Gedanken, den Sie hatten einfach in die erste freie Box, den zweiten in die zweite freie Box usw. Bitte schreiben Sie pro Box einen Gedanken auf. Ich habe absichtlich mehr Platz vorbereitet, als die meisten Teilnehmer benötigen werden, damit alle genügend Platz für Ihre Gedanken haben. Machen Sie sich also keine Gedanken, wenn Sie nicht alle Boxen benötigen.

Bitte versuchen Sie, in ganzen Sätzen zu antworten, aber machen Sie sich keine Sorgen wegen grammatikalischer Details oder korrekter Schreibweise. Bitte sein Sie bei Ihren Gedanken offen und ehrlich. All Ihre Antworten sind anonym.

6	**Thoughts (PGID 756888)**			
Während dem Lesen habe ich gedacht... (q_1350378 - Typ 142)				
v_1	v_1	blob	Thoughts 1	
Während dem Lesen habe ich gedacht... (q_1350382 - Typ 142)				
v_2	v_2	blob	Thoughts 2	
Während dem Lesen habe ich gedacht... (q_1350383 - Typ 142)				
v_3	v_3	blob	Thoughts 3	
Während dem Lesen habe ich gedacht... (q_1350384 - Typ 142)				
v_4	v_4	blob	Thoughts 4	
Während dem Lesen habe ich gedacht... (q_1361560 - Typ 142)				
v_6	v_6	blob	Thoughts 5	
Während dem Lesen habe ich gedacht... (q_1361561 - Typ 142)				
v_7	v_7	blob	Thoughts 6	
Während dem Lesen habe ich gedacht... (q_1361562 - Typ 142)				
v_8	v_8	blob	Thoughts 7	
Während dem Lesen habe ich gedacht... (q_1361563 - Typ 142)				
v_9	v_9	blob	Thoughts 8	
Während dem Lesen habe ich gedacht... (q_1361564 - Typ 142)				
v_10	v_10	blob	Thoughts 9	
Während dem Lesen habe ich gedacht... (q_1361565 - Typ 142)				
v_11	v_11	blob	Thoughts 10	
7	**Estimates (PGID 756889)**			
In der folgenden Aufgabe bitte ich Sie, einmal das Auftreten verschiedener medizinischer Fälle einzuschätzen. (q_1370471 - Typ 144)				
v_118	v_118	varchar	Welcher Prozentsatz der in den deutschen Krankenhäusern stattfindenden Gesundheitsversorgung beinhaltet eine Art der Bluttransfusion?	
v_119	v_119	varchar	Welcher Prozentsatz von Patienten in Deutschland erfährt Komplikationen durch fehlende Bluttransfusionen?	
v_120	v_120	varchar	Welcher Prozentsatz der deutschen Bevölkerung wird mindestens einmal im Laufe seines Lebens eine Bluttransfusion benötigen?	
v_121	v_121	varchar	Welcher Anteil der deutschen Bevölkerung erfüllt die Voraussetzungen, um Blut zu spenden?	

v_122	v_122	varchar	Welcher Anteil der deutschen Bevölkerung spendet regelmäßig Blut?	
8	**Attitude Measures (PGID 756890)**			
In der folgenden Tabelle finden Sie Aussagen zum Thema Blutspenden. Ich interessiere mich dafür, inwiefern Sie den einzelnen Aussagen zustimmen oder die Aussagen ablehnen. Bitte behalten Sie dabei im Kopf: es geht hier nicht darum, persönliche Aussagen zu bewerten, die Studie ist vielmehr am allgemeinen Trend unter allen Teilnehmer/-innen interessiert. (q_1370553 - Typ 311)				
v_152	v_152	int	Ich denke, Blutspenden tragen nicht zum Wohlbefinden anderer Menschen bei.	
		1	*stimme überhaupt nicht zu*	
		2		
		3		
		4		
		5		
		6		
		7	*stimme voll und ganz zu*	
v_153	v_153	int	Ich denke, Blut zu spenden ist ein ethisches Verhalten.	
		1	*stimme überhaupt nicht zu*	
		2		
		3		
		4		
		5		
		6		
		7	*stimme voll und ganz zu*	
v_154	v_154	int	Ich denke, an Blutspenden teilzunehmen, ist hilfreich für andere Menschen in der Gesellschaft.	
		1	*stimme überhaupt nicht zu*	
		2		
		3		
		4		
		5		
		6		
		7	*stimme voll und ganz zu*	
v_155	v_155	int	Ich kann kein Blut sehen.	
		1	*stimme überhaupt nicht zu*	
		2		
		3		
		4		
		5		
		6		
		7	*stimme voll und ganz zu*	
v_156	v_156	int	Ich werde nervös, wenn ich an Blutspenden denke.	
		1	*stimme überhaupt nicht zu*	
		2		

		3		
		4		
		5		
		6		
		7	*stimme voll und ganz zu*	
v_157	v_157	int	Ich habe Angst davor, mich beim Blutspenden mit einer Infektionskrankheit anzustecken.	
		1	*stimme überhaupt nicht zu*	
		2		
		3		
		4		
		5		
		6		
		7	*stimme voll und ganz zu*	
v_158	v_158	int	Ich habe Angst davor, beim Blutspenden Blutergüsse und schmerzende Arme zu bekommen.	
		1	*stimme überhaupt nicht zu*	
		2		
		3		
		4		
		5		
		6		
		7	*stimme voll und ganz zu*	
v_159	v_159	int	Ich habe Angst vor Nadeln.	
		1	*stimme überhaupt nicht zu*	
		2		
		3		
		4		
		5		
		6		
		7	*stimme voll und ganz zu*	
v_160	v_160	int	Ich habe Angst, dass durch eine Blutspende eine Krankheit entdeckt wird.	
		1	*stimme überhaupt nicht zu*	
		2		
		3		
		4		
		5		
		6		
		7	*stimme voll und ganz zu*	
v_161	v_161	int	Ich habe nicht genügend Zeit für eine Blutspende.	
		1	*stimme überhaupt nicht zu*	
		2		
		3		
		4		

		5		
		6		
		7	*stimme voll und ganz zu*	
v_162	v_162	int	Ich habe Angst, dass mein Immunsystem und meine Vitalität durch eine Blutspende leiden.	
		1	*stimme überhaupt nicht zu*	
		2		
		3		
		4		
		5		
		6		
		7	*stimme voll und ganz zu*	
v_163	v_163	int	Ich habe noch nicht viel über Blutspenden nachgedacht.	
		1	*stimme überhaupt nicht zu*	
		2		
		3		
		4		
		5		
		6		
		7	*stimme voll und ganz zu*	
9	**Control Variables (PGID 756893)**			
Nun interessiert mich noch die Relevanz des Blutspendens für Sie persönlich. (q_1364995 - Typ 311)				
v_95	v_95	int	Wie relevant ist für Sie persönlich, Blut zu spenden?	
	rel1	*1*	*völlig irrelevant*	
		2	*eher irrelevant*	
		3	*mäßig irrelevant*	
		4	*unentschieden*	
		5	*mäßig relevant*	
		6	*eher relevant*	
		7	*hoch relevant*	
In den folgenden Aufgaben bitte ich Sie, anzudeuten, wie wahrscheinlich es ist, dass Sie im nächsten Jahr folgende Dinge tun: (q_1364996 - Typ 311)				
v_97	v_97	int	Wie wahrscheinlich ist es, dass Sie in den kommenden 12 Monaten Blut spenden?	
	beh1	*1*	*keinesfalls wahrscheinlich*	
		2	*sehr unwahrscheinlich*	
		3	*eher unwahrscheinlich*	
		4	*unsicher*	
		5	*eher wahrscheinlich*	
		6	*sehr wahrscheinlich*	
		7	*sicher*	

		8	*Ich weiß, dass ich in den nächsten zwölf Monaten kein Blut spenden darf.*	
v_98	v_98	int	Wie wahrscheinlich ist es, dass Sie sich in den kommenden 12 Monaten erkundigen, ob Sie die Voraussetzungen zur Blutspende erfüllen?	
	beh2	*1*	*keinesfalls wahrscheinlich*	
		2	*sehr unwahrscheinlich*	
		3	*eher unwahrscheinlich*	
		4	*unsicher*	
		5	*eher wahrscheinlich*	
		6	*sehr wahrscheinlich*	
		7	*sicher*	
		8	*Ich weiß, dass ich in den nächsten zwölf Monaten kein Blut spenden darf.*	
Sind Sie.... (q_1369574 - Typ 112)				
v_102	v_102	int	Blood Donors	
	Donors	*1*	*ein/e regelmäßige/r BlutspenderIn? (mindestens zweimal in den letzten 12 Monaten) ?*	
		2	*kein/e regelmäßige/r BlutspenderIn?*	
10	**SocDemo (PGID 756894)**			
Zum Schluss geben Sie uns bitte noch einige Informationen zu Ihrer Person:Mit welchem Geschlecht identifizieren Sie sich am meisten? (q_1361587 - Typ 112)				
v_23	v_40	int	Sex	
		1	*männlich*	
		2	*weiblich*	
		3	*transsexuell*	
		4	*keins der oben genannten / möchte nicht antworten*	
In welchem Jahr wurden Sie geboren? (q_1361588 - Typ 141)				
v_24	v_41	varchar (mit Typencheck: Ganzzahl)	Age	
Welchen höchsten allgemeinbildenden Schulabschluss haben Sie? (q_1361589 - Typ 131)				
v_25	v_47	int	Education	
		1	*keinen Abschluss an einer allgemeinbildenden Schule*	
		2	*Hauptschulabschluss*	
		3	*Mittlere Reife*	
		4	*Abschluss der Polytechnischen Oberschule in der 8. oder 9. Klasse in der DDR*	
		5	*Abschluss der Polytechnischen Oberschule der 10. Klasse in der DDR*	

		6	*Fachhochschulreife, Fachoberschule*	
		7	*Allgemeine oder fachgebundene Hochschulreife/Abitur*	
Welchen höchsten beruflichen Abschluss streben Sie an? (q_1515329 - Typ 131)				
v_193	v_193	int	Education 2	
		1	*Beruflich-betriebliche Ausbildung (Lehre)*	
		2	*Beruflich-schulische Ausbildung*	
		3	*Ausbildungsabschluss an einer Fach-, Meister-, Technikerschule, Berufs- oder Fachakademie*	
		4	*Bachelor an einer Hochschule/Universität*	
		5	*Fachhochschulabschluss (z.B. Diplom, Master)*	
		6	*Universitätsabschluss (z.B. Diplom, Magister, Staatsexamen, Master)*	
		7	*Promotion*	
		8	*einen anderen beruflichen Abschluss*	

Sie haben es fast geschafft.
Wenn Sie nun "Weiter" klicken, werden Sie auf eine separate Seite geleitet auf der ich Ihre E-Mail Adressen abfrage sowie ihrer Rekrutierer. Sie werden dann in drei b vier Wochen nocheinmal einige abschließende Infos zum Ziel der Studie erhalten.
Ihre Angaben auf der nächsten Seite sind dabei nicht mit Ihren Antworten, die Sie bisher gegeben habe in Verbindung zu bringen. Ihre Angaben bleiben wie versprochen anonym.

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